TITLE: STATE OF MINNESOTA AND BLUE CROSS AND BLUE SHIELD OF MINNESOTA, PLAINTIFFS,
V.
PHILIP MORRIS, INC., ET. AL.,
DEFENDANTS.
TOPIC: TRIAL TRANSCRIPT
TRANSCRIPT OF PROCEEDINGS
DOCKET-NUMBER: C1-94-8565
VENUE: Minnesota District Court, Second Judicial District, Ramsey County.
YEAR: April 1, 1998
A.M. Session

JUDGE: Hon. Judge Kenneth J. Fitzpatrick, Chief Judge

THE CLERK: All rise. Ramsey County District Court is again in session, the Honorable Kenneth J. Fitzpatrick presiding.

(Jury enters the courtroom.)
THE CLERK: Please be seated.
THE COURT: Good morning.
(Collective "Good morning.")
THE COURT: We'll be recessing for the balance of the day.
(Laughter.)
THE COURT: That's -- that's a little payback for the jurors.
(Laughter.)
THE COURT: Counsel.
MR. CIRESI: Thank you, Your Honor.
Good morning, ladies and gentlemen.
(Collective "Good morning.")
DAVID E. TOWNSEND
called as a witness, being previously
sworn, was examined and testified as
follows:
BY MR. CIRESI:
Q. Good morning, doctor.
A. Good morning.
Q. Could you direct your attention to Exhibit 18187 in volume two. It's Dr. Rodgman's memorandum of 1962.
A. Okay.
Q. Can you direct your attention, please, to page 13. You'll recall we were on that page yesterday concerning Dr. Rodgman's urging of the company to get its information out if it was going to take a position that they were not guilty or not proven. Do you recall that?
A. I recall we were on page 13.
Q. Okay. And do you recall that we were discussing that portion?
A. We were discussing toward the end of the large paragraph on page 13.
Q. And that's the portion about not guilty, not proven; correct?
A. That's the portion that contains that, that's correct.
Q. Now if you go over to the next page, sir, on that page Dr. Rodgman makes recommendations; correct?
A. Yes.
Q. And he talks in the very first sentence in the recommendations about the company's obligation to its customers; correct?
A. Yes, he does.
Q. And he recommends that facilities, animals, and personnel, where necessary, be acquired to study biologically cigarette smoke, tobacco, tobacco and additives; correct?
A. That's correct.
Q. And he points out in 1962 that this recommendation had been previously made; correct?
A. Yes, he does.
Q. One was by Dr. Teague in 1953, almost nine years before; correct?
A. Yes.

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Q. And we saw Dr. Teague's memorandum yesterday; did we not?
A. Yes.
Q. He also points out that he himself recommended it in 1954; correct?
A. That's right.
*2 Q. He recommended it in 1955; correct?
A. Yes.
Q. He recommended it in 1956; correct?
A. That's right.
Q. He recommended it in 1959; correct?
A. That's what he said.
Q. And he says that Dr. Nielson recommended it in 1962; correct?
A. Correct.
Q. And that he himself again recommended it; correct?
A. Yes. There's no date with that, but that's correct.
Q. Now he believes that data from such studies, if they were conducted by the company, would be invaluable if government restrictions were imposed as a result of the conclusions of the Surgeon General's Committee on Smoking and Health; correct?
A. You said "would be." He says "may be invaluable."
Q. "May be invaluable;" correct?
A. That's correct.
Q. And he stated, "It is, I believe, more urgent than ever that we acquire dexterity in biological techniques." Correct?
A. That's what he says.
Q. And when he's talking about the biological implications, he's talking about whether or not the carcinogens in smoke would cause cancer in human beings; correct?
A. Well I don't know that he was speaking that narrowly. I think he was speaking certainly to the smoking- and-health issues. It probably in his mind did include polycyclic aromatic hydrocarbons, which he did a lot of work on.
Q. And sir, the industry knew as early as 1958 that there was no super carcinogen, but it was a synergy of a number of carcinogens that would cause cigarette smoke; isn't that correct?
A. I think that's -- that's probably an oversimplification. I think we knew that polycyclic aromatic hydrocarbons, like benzpyrene, were present in smoke. I think in the 1950s, certainly, this synergistic theory of phenol promotion with polycyclics was certainly in place. We were examining a number of theories, a number of different approaches.
Q. Can you turn to Exhibit 11028, please. It's in volume one.
A. 11028?
Q. Correct.
A. Okay. I'm there.
Q. This is a trip report on a visit to the United States by three scientists from England who were involved in the tobacco industry. Have you seen this document before?
A. I saw it the other day after it was designated by you for my examination.
Q. Is that the first time you saw the document?
A. Yes, it is.
Q. Can you direct your attention to the itinerary page.
A. All right.
Q. Do you see in this page, sir, that the three English representatives from the English tobacco industry visited a number of different companies and institutions in the United States?
A. Looks primarily to be university or research institutions. There's one or two companies on here, that's correct.
Q. American Tobacco Company; correct?
A. That's the first entry.
Q. Medical College of Virginia?
A. Right.
Q. Duke University?
A. Yes.
Q. Liggett & Myers?
A. That's correct.
Q. Philip Morris?
A. That's correct.
Q. A. D. Little?

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*3 A. Right.
Q. Are you familiar with A. D. Little?
A. In a general sense, yes.
Q. And they're an organization that does biological research?
A. They have done contract biological research, yes.
Q. TIRC, you're familiar with that; are you not?
A. Somewhat. I've heard of it. I know a little bit about it, but certainly not much.
Q. You know that that's the same organization as the CTR?
A. My understanding is that was the predecessor to the CTR.
Q. Okay. Roswell Park Memorial Institute in Buffalo, you're familiar with that organization; are you not?
A. I've -- I'm somewhat familiar with it, yes.
Q. Okay. Yale University?
A. Yes.
Q. Biological Research Institute in Cambridge?

A. Yes.

Q. Roscoe Johnson Laboratory in Bar Harbor?

A. Right.
Q. The Industrial Technical Committee of TIRC?
A. That's right, yes.
Q. The National Cancer Institute in Bethesda, Maryland?
A. Right.
Q. Johns Hopkins University -- Hospital in Baltimore?
A. Right.
Q. New York University?
A. Right.
Q. And then the TIRC again, both Dr. Little and Dr. Hockett. Have you heard of them?
A. I've heard the names.
Q. And the Sloan-Kettering Institute in New York?
A. Yes.
Q. You've heard of that?
A. Yes.
Q. It's a renowned cancer institute?
A. They do cancer research there.
Q. The TIRC in New York, the Scientific Advisory Board; correct?
A. That's what it says.
Q. And can you turn your attention to page two of this document. Do you see it's reported there that these individuals from England learned from the people they visited that "With one exception (H.S.N. Greene)" of Yale "the individuals whom we met believed that smoking causes lung cancer if by 'causation' we mean any chain of events which leads finally to lung cancer and which involves smoking as an indispensable link." Do you see that?
A. I see that.
Q. And sir, can you go over to page four, and do you see down there there's a heading "RESULTS OF SCREENING TESTS ON SMOKE FRACTIONS?"
A. Which paragraph?
Q. The -- right toward the end, there's a heading "RESULTS OF SCIENTIFIC SCREENING ON" --
A. Yes.
Q. -- "SMOKE FRACTIONS." Do you see that?
A. Yes.
Q. And do you see that the scientists state "One of the objectives -- main objectives of the visit was to discover whether there were any experimental grounds for believing that cigarette smoke condensate contains only one principal carcinogen which is quantitatively responsible for a large portion of the biological activity as measured by animal tests (a 'super carcinogen' in Wright's terminology)?" Do you see that?
A. I see that.
Q. And if you can go to page nine of this exhibit --
Actually go to page eight first, sir. And do you see the conclusions start there?
A. Yes.

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Q. The first conclusion says, "Although there remains some doubt as to the proportion of the total lung cancer mortality which can fairly be attributed to smoking, scientific opinion in the U.S.A. does not now seriously doubt that the statistical correlation is real and reflects a cause and effect relationship." Do you see that?
*4 A. I see that.
Q. And if you go over to the next page, under number three, you state that the collective opinion of all of these people was that, "The direct carcinogenicity of smoke condensate to animal tissue, which is consistent with direct causation, is now fully confirmed but the evidence so far obtained makes it unlikely that this activity is due to any single 'super carcinogen' in smoke." Do you see that?
MR. WEBER: Your Honor, I -- I'd object on that question, it states that the memorandum says this is the collective opinion of all these people.
THE COURT: Yeah. Rephrase the question, counsel.
BY MR. CIRESI:
Q. As a result of the visit by these three individuals and their meetings with all of the individuals listed on the itinerary, do you see that they draw conclusions, of which one is number three? Do you see that?
A. There is a -- a conclusion number three.
Q. And conclusion number three is what I just read; correct, sir?
A. You went through it. I'm not sure that you read it verbatim, but --
Q. Well let me read it again.
A. Okay.
Q. "The direct carcinogenicity of smoke condensate to animal tissue, which is consistent with direct causation, is now fully confirmed but the evidence so far obtained makes it unlikely that this activity is due to any single 'super carcinogen' in smoke." Do you see that?
A. I see that.
Q. And did I read it correctly?
A. You did.
Q. And this was in 1958; correct?
A. It's dated 1958.
Q. Now it is fair to state, is it not, sir, that in the '50s, those who were looking at this issue did not believe it was a super carcinogen but the synergism of all of the carcinogens in cigarette smoke that caused lung cancer?
A. I don't think that represents the entire picture. I think there were some scientists who in fact were looking for single carcinogens or suggested that some carcinogens may be responsible for -- for the statistical association between smoking and disease.
Q. Well we can --
A. Others -- other scientists had different opinions. And certainly by the late '50s, the idea of -- of cocarcinogenicity was coming into play with the phenol theory that we talked about. I think also over -- over time science has changed its approach in very complex mixtures like tobacco smoke from looking at single components or constituents to looking at the total bulk of the constituents.
Q. It's reported here, sir, that based on the Sloan- Kettering Institute and Yale, TIRC, tobacco companies themselves, that there was no super carcinogen. That's what's reported in this document; correct?
A. That's one conclusion here that -- and it says the evidence so far obtained makes it unlikely that this activity is due to any single super carcinogen.
Q. Thank you.
A. That sounds like there's a lot of questioning still. And furthermore, I don't -- I don't really quite know how this conclusion was arrived at, whether it was one of these people or the entire list that you've read out. I just don't know.
*5 Q. You just don't know.
Now I suppose that if there's an overwhelming number of people that feel one way about something, you can always find someone who may feel differently; correct?
A. In areas like this that are very complicated, there is always debate and there are always people that have different opinions and ideas.
Q. For example, today the World Health Organization believes that smoking causes cancers; correct?
A. They've made that statement.
MR. WEBER: Objection. Objection, Your Honor, the witness did not give medical testimony on direct. That was not part of his testimony.

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THE COURT: This isn't medical testimony. He may answer that.
Q. The American Medical Association believes that smoking causes cancers; correct?
A. They've made statements to that effect.
Q. The American Heart Association believes that it causes heart disease; correct?
A. They've made statements to that effect, certainly.
Q. The Centers for Disease Control says that smoking causes disease; correct?
A. I believe that they've made statements similar to that as well.
Q. In fact, every medical organization today in the United States says smoking causes disease; doesn't it?
A. It wouldn't surprise me. I don't know that to be a fact. I haven't polled all the medical organizations.
Q. But of course the tobacco industry says it doesn't; correct?
A. No, that's absolutely incorrect. The position and the understanding is that cigarette smoking, is that -- is that my company does not say that it doesn't. It may. We don't know.
Q. Your company --
A. There's not --
Q. Your company does not say --
MR. WEBER: Objection, Your Honor.
Q. -- that smoking causes disease; does it?
MR. WEBER: The witness was interrupted.
THE COURT: You interrupted the witness. Let him finish his answer, counsel.
A. It's clear to me that cigarette smoking is a risk for a number of diseases. There's no question about that. Whether or not cigarette smoke in itself and by itself causes those diseases is still not scientifically established. It certainly may. And that's exactly what science is still trying to get to. And there's actually in the area of scientific research, some of which is going on in Reynolds today and the bulk of it is going on in the universities, looking at mechanisms of how chronic diseases occur, such as free radical, mechanisms such as these.
Q. When has Reynolds stated that smoking causes disease?
A. It's not scientifically established that smoking in itself, by itself, causes disease.
Q. That wasn't my question.
A. I said it --
Q. That wasn't my question, sir.
When has Reynolds stated that smoking causes disease?
A. Reynolds has never stated that smoking causes disease.
Q. Thank you.
Now you discussed general and selective reductions; is that right?
A. That was part of the testimony.
Q. And in doing so, you mentioned steak and whether there was benzopyrene when you were barbecuing steaks. Is that -- did you mention that?
*6 A. There was -- I -- I spoke to barbecued steaks as an example to show that benzpyrene is not present only in cigarette smoke, there are other forms of exposure.
Q. And fruit. You mentioned fruit.
A. Sure.
Q. Okay. Now has Reynolds done any tests on people smoking steaks?
A. I don't understand that question.
Q. Well we're talking about inhalation here as a cause of disease; aren't we, sir?
A. I just said a second ago that when -- I spoke to that to -- to try to convey the idea that benzpyrene is present in other sources.
Q. Well --
A. I didn't talk about smoking steaks. That doesn't make sense to me.
Q. No. And it doesn't make any sense to talk about smoking fruit; does it?
A. I still don't understand your question.
Q. Well I'm trying to get an understanding, sir, of why you were mentioning it. Were you trying to imply that there was some biological connection between the benzopyrene that may be on steak or in fruit in terms of causing disease? Were you trying to imply that?
A. I've said twice in the last two minutes, I suppose, that I was trying to convey the idea that cigarettes -- that benzpyrene is present in other exposure means -- by other exposure means. I was certainly not trying to imply any biological implications.
Q. Thank you.

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A. Simply that benzpyrene is present in steaks, fruits, vegetables, and other sources.
Q. And do you know how many epidemiological studies have been conducted under varying conditions by varying investigators in varying locals that show that smoking causes disease? Do you know how many?
A. I don't know a number how many, no.
Q. Do you know if any such study has ever been conducted with regard to fruit? Do you?
A. I don't know what studies have been conducted with fruit, with barbecued steaks, with fruit, with vegetables. I -- I've made --
I say again, I was trying to demonstrate that benzpyrene is present in other exposures, that it's not unique to cigarette smoke, that's all.
Q. Can you direct your attention to Exhibit 3838, and it will be in one of the folders up there. It's the 1981 Surgeon General report.
Now in your testimony you said you keep very closely abreast of Surgeon General reports, they're extremely important for scientists in the area of cigarette design and product development. Do you remember that?
A. I remember testimony along those lines. I certainly do look at -- at Surgeon General's reports, and particularly the areas that relate to cigarette design, because from time to time there are some -- a number of sections or -- or specific information about cigarette design.
Q. Now would it also be extremely government -- or extremely important for the government to have the information that the industry had about its products?
A. That's a very general statement -- or question. Can you - - can you be more specific? I don't understand.
Q. Well you said you were keeping very closely abreast of Surgeon General reports, it's extremely important for scientists in the area of cigarette design and product development, and now you just said that that means you look at certain parts of the report. I'm asking you whether, since you were referring to a Surgeon General's report --
*7 Which is a government document; correct?
A. Surgeon General's report is a government document, of course.
Q. Now I'm asking you whether or not it would be important for the government to have at its hands, in its hands, all of the information that the companies knew about their products. Do you think that would be important from the government's standpoint?
A. That's a very general question. Can you give me specifics, and I'll -- I'll try to tell you what I think.
Q. You can't answer that question?
A. In a general sense?
Q. Yes.
A. No, I don't think I can answer that in a general sense.
Q. Would it be --
A. If you have something specific, I'll be glad to try to help.
Q. Well, would it be important for the government to have all the information a company knew about addiction?
A. If information that a company develops on addiction, for example, adds to the scientific understanding, if it's new information that really increases scientists' understanding of addiction, to use this example, then I think that's important to publish, present, and get out in the -- in the open public literature, in the scientific domain, certainly.
Q. And you know that scientists have stated that in light of the disclosures that have come forward since 1994, that they learned information that they never had before about addiction; don't you?
MR. WEBER: Objection. Objection, Your Honor, counsel is testifying.
THE COURT: Rephrase the question.
BY MR. CIRESI:
Q. Do you know if scientists have published in the Journal of the American Medical Association that they learned information from the internal documents of the industry that started to come forward since 1995? Do you know that?
MR. WEBER: Same objection, Your Honor.
THE COURT: No, you may answer.
A. I'm aware that there have been statements to that effect in the Journal of the American Medical Association.
Q. You've read those; haven't you, sir?
A. I've read portions of them, skimmed some of them.

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Q. And can you direct your attention to Exhibit 18989?
A. I'm sorry, which number?
Q. 18989.
A. I don't see one in my booklet.
Q. Let me hand you one, sir.
MR. CIRESI: May I approach, Your Honor?
MR. WEBER: Is that the correct number? Because we don't have a 18989 on our list.
MR. CIRESI: That is the correct number.
MR. WEBER: It was not designated, Your Honor.
Q. Have you read this before?
MR. WEBER: Your Honor, excuse me.
THE COURT: Counsel, just a moment, please. I want to make sure counsel is done.
MR. CIRESI: Oh, I'm sorry.
MR. WEBER: The document, the number that was just given, was not designated.
MR. CIRESI: Well he stated that he's read something. I want to see if he's read this before. I'm using it to refresh his recollection, Your Honor.
THE COURT: All right.
MR. CIRESI: Have you read --
THE COURT: Does counsel have a copy though? Can we provide a copy to counsel?
*8 MR. WEBER: Your Honor, I'd object inquiring about a non- designated document. We -- that has not been the practice here. They -- they gave us six or seven supplemental designations, but they never designated this, and I --
They designated other documents from this very -- in this very line, but not this one.
MR. CIRESI: Your Honor, he's just testified that he's read some. I'm simply asking if this is one.
THE COURT: All right. You may answer the question.
BY MR. CIRESI:
Q. Have you read this document, sir?
A. I read it some time ago.
Q. Okay. And you're familiar, then, with the fact that it has been stated in the Journal of the American Medical Association that the documents of the industry that came forward since 1994 show "that research conducted by the tobacco companies into the deleterious effects of tobacco was often more advanced and sophisticated than studies by the medical community;" correct?
A. That's what it says, and I disagree with that.
Q. Well do you know anything about the biological implications of these documents?
A. We're not talking about biological implications. The words say that the tobacco companies' research was more advanced and sophisticated than studies by the medical community. What I've seen leads me to the conclusion I disagree with that. We looked to the outside medical community, we worked with them, we did contract studies, so I disagree with that statement. But that's what it says here.
Q. And you're not a doctor; are you?
A. I'm not a medical doctor.
Q. You have no training in biology; do you?
A. I have no significant training in biology.
Q. And the documents show "that executives at B&W knew early on that the tobacco use was harmful and that nicotine was addictive and debated whether to make the research available or public." Do you see that?
MR. BERNICK: Your Honor, I object to the question, it violates the court's prior determination at side-bar.
THE COURT: No, you may answer that.
A. I see that statement.
Q. And it also shows "that the industry decided to conceal the truth from the public;" correct?
A. That's what it says here. I don't understand that, frankly. That's not been my experience at Reynolds.
Q. And if you go down to the last bullet point, it says that the documents show "that despite their knowledge to the contrary, the industry's public position was, quote, and continues to be, end of quote, that the link between smoking and ill health was not proven, that they were dedicated to determining whether there was such a link and revealing this to the public, and that nicotine was not addictive." Do you see that?
A. Is your question do I see that?
Q. Yes.

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A. Yes, I see that.
Q. And that was reported in 1995, correct, in the Journal of the American Medical Association?
A. That's a statement in the Journal of the American Medical Association, 1995.
*9 Q. And -- and the next statement was that "We think that these documents and the analysis merit the careful attention of our readership," and the readership are doctors of the Journal of the American Medical Association; correct?
A. By and large.
Q. And scientists; correct?
A. By and large doctors and scientists.
Q. And the statement goes on to state, "because they provide massive, detailed, and damning evidence of the tactics of the tobacco industry. They show us how this industry has managed to spread confusion by suppressing, manipulating, and distorting the scientific record." Correct?
MR. WEBER: Your Honor, I'd object to any further reading of an editorial that was not designated for this witness. It's an editorial in the first place, it wasn't designated.
THE COURT: You may answer the question.
Q. Is that what's reported, sir?
A. That's what's said here, and it's contrary to my experience in the industry.
Q. Did you write a letter to the Journal of the American Medical Association detailing why you believe this was false when you read this?
A. Did I personally?
Q. Yes.
A. No.
Q. And can you go to the last page. I'm sorry, the second- to-the-last page, sir. Page 257.
A. Okay.
Q. And do you see there it's relating to the articles that were published in that Journal of the American Medical Association?
A. In the bottom left-hand column it says "The Articles." Is that what you're referring to?
Q. That's correct.
A. Okay.
Q. And it states that "These five articles provide a careful analysis of the documents?"
A. That's what it says.
Q. And then it goes on to state in that paragraph, "The articles show that the effect of tobacco company tactics, long suspected, has been to obfuscate the conclusions of scientists, to confuse the public, and to assist greatly the tobacco industry in its successful efforts to influence the political process in its favor." Do you see that?
MR. WEBER: Same -- Your Honor, I'd make the same objection again.
THE COURT: Overruled. You may answer.
A. I see that statement there, and again that's been -- that's contrary to my experience at Reynolds. We've worked hard to try to modify products to address the smoking-and-health issues, we've worked with scientists, we've tried to develop biological assays, new chemical analyses, we've certainly not tried in my opinion to obfuscate the conclusions of scientists.
Q. And do you see where it states --
By the way, you didn't write in and say that to the Journal of the American Medical Association; did you?
A. Me personally?
Q. Yes.
A. No.
Q. And it goes on to state, "The surgeon general's report of 1964 would have been far more decisive in its conclusions and recommendations had the evidence available to executives of B&W been available to the surgeon general's committee. We can only speculate how many lives would have been saved and how much suffering would have been averted." Do you see that?
*10 MR. WEBER: Same objection, Your Honor.
THE COURT: You may answer that.
A. I see that statement here.
Q. Now when Surgeon General's reports are done, they are done pursuant to studies conducted by doctors and scientists; correct?

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A. There's a lot of scientific information, both medical and chemical in there.
Q. And those doctors and scientists look to information that is available in the field regarding the subject matter that they are testing; correct?
A. I'm sorry, I don't understand that. Can you repeat it?
Q. Those scientists and doctors look to information in the field with respect to the subject matter that they are investigating; correct?
A. I think any scientist keeps abreast of the literature in their field, certainly.
Q. And the more information that those scientists and doctors would have had who have worked -- been working on the Surgeon General's reports, the more effective would have been their investigation into what they were investigating; correct?
A. I think a scientist needs to be fully abreast of the available information in the literature. I think scientists also, if they have information that contributes to -- to the advancement of science, should publish and present that information.
Q. And the scientists who were working on the Surgeon General's reports all the way up to 1994 did not have all of the information that was extant in the companies' files with respect to testing, addiction, causation of diseases; did they?
MR. WEBER: Your Honor, I would object. Counsel is testifying. He hasn't laid a foundation.
THE COURT: You may answer that.
THE WITNESS: I'm sorry, can you repeat that?
MR. CIRESI: Certainly. Can we have the question back, please.
(Record read by the court reporter.)
A. In a general sense I would -- I would conclude that scientists outside certainly didn't have access to all the scientific information in all of the companies' files, but -- but I think, also, that all of the information that's in the companies' files necessarily wouldn't have changed the -- the scientific -- the scientific opinions and information that was available.
Q. That's not what the doctors who signed that editorial in the Journal of the American Medical Association said; is it, sir?
A. No, that's clearly not what the doctors who signed this editorial piece believed or felt.
Q. Now can you direct your attention to Exhibit 3838, which is one of those Surgeon General's reports back in 1981.
A. Is that in a ring binder?
Q. It should be in one of the red rope files there.
A. Okay. The '81 Surgeon General?
Q. '81 Surgeon General's report.
Now sir, as of 1981, do you know if a substantial portion of the population did not know how dangerous smoking was or whether the dangers of smoking applied to them, and therefore, did not have an understanding of the health hazards of smoking? Do you know?
MR. WEBER: Your Honor, I'd object, this is well beyond the scope of the direct.
*11 THE COURT: No, you may answer that.
A. Are you referring to a passage here?
Q. No, I'm not. I'm asking you a question.
A. Okay. I'm sorry, can you ask that again?
Q. Certainly will.
Do you know if, as of 1981, a substantial portion of the population did not know how dangerous smoking was or whether the dangers of smoking applied to them, and did not have an understanding of the health hazards of smoking? Do you know?
A. Well I'm not an expert in the area of awareness or what people know or believe or think, I'm certainly not an expert in that area. My common sense, based on what I do know, of what I've seen in the popular press is that most of the people, almost all of the people in this country not only think that cigarette smoking is a risk for disease, they believe it's the cause of disease.
Q. Now do you know that the FTC staff report on cigarette advertising in 1981, May of that year, issued a statement stating a substantial portion of the population does not know how dangerous smoking is or whether the dangers of smoking apply to them, and, therefore, do not have an understanding of the health hazards of smoking?
MR. WEBER: Let me object, Your Honor. The witness was not on direct permitted, pursuant to objection, to testify about advertising or marketing.
MR. CIRESI: Your Honor, he's been proffered as an expert on cigarette design.
THE COURT: Okay. All right. You may answer that.
Q. Did you know that, sir?

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A. I am generally aware of the FTC document that you're talking about. I'm generally aware that there's a statement similar to that in there.
Q. And do you --
A. I know that there's a difference of opinion among even experts about the level of awareness of the risks of smoking. For example, Viscusi.
Q. So you don't know who knew what about smoking in the population; do you? You yourself.
A. I'm not an expert in the area. I've not done studies, I've not gone out and done polls of -- of smokers or non-smokers, even, and tried to evaluate what they believe about the risks of smoking. I have a general, common-sense conclusion that's based on my reading of the popular literature, the newspapers and magazines and the like.
Q. Now sir, one of the basic tenets of design of any product is to know the environment of use into which you're going to put your product; is it not?
A. That's an awfully general question. Can you give me a more specific --
Q. You've never heard that --
A. Give me an example.
Q. You've never heard that, as a designer of a consumer product, that you should know the environment of use into which you're going to place your product?
A. What do you mean, "environment of use?"
Q. You don't even know the term; do you?
A. I don't understand what you mean by "environment of use." I'm not trying to be difficult, I'm just trying to understand what you're asking me.
Q. I'm not trying to be difficult either.
*12 You've never heard the term "environment of use;" correct?
A. It's not a term I use.
Q. Now you're not a --
You don't have an engineering degree; do you?
A. I'm not an engineer.
Q. So you haven't obtained any formal training in design engineering; have you?
A. I'm not a design engineer.
Q. But you are in charge of design at Reynolds; is that correct?
A. I'm responsible for product development, analytical chemistry research, and analytical chemistry routine support for R. J. Reynolds Tobacco Company.
Q. Well that's a little different than I thought you said on direct. Are you in charge of design for cigarettes?
A. The staff under my direction and me, throughout my history of employment, have worked on the design of cigarettes. You asked what I was responsible for. I am responsible for product development and analytical chemistry research.
Q. I didn't ask you if you had worked on the design. My question is a little different.
Are you responsible for the design of cigarettes?
A. I'm responsible --
As a product developer, I'm responsible to develop cigarette designs that meet certain objectives.
Q. The entire design of cigarettes you're responsible for?
A. Not the entire design. There are groups that have specialties in certain areas that, because of their specialty, work with my product developers hand in hand to make sure that we get the best designs possible.
Q. Who is in charge of the overall design of cigarettes at Reynolds?
A. Well I guess the way you're asking me the question, the person that has the ultimate responsibility in cigarette design and because of the -- the nature of the cooperative work we do with our biologists, toxicologists and cigarette design researchers, our basic researchers, because of the cooperative nature of how we do our job, the person that's ultimately responsible is the head of research and development.
Q. Who is that?
A. That's Dr. Gary Berger.
Q. Now "environment of use," what that means, I want you to assume, is who's going to be using your product and how they're going to be using it, in what way they're going for using it. Does that help you in understanding what the "environment of use" is?
A. The "who" I understand very clearly. The "in what way" I -- I'm not sure I understand that. What do you mean?
Q. How they might smoke it in terms of puffs, puff volume, whether they compensate, how many cigarettes they may smoke, whether it's youth that are smoking, all of these things, the environment of use. Do you understand that?

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A. I think I'm understanding a little bit more of the question that you're asking.
Clearly on cigarette design efforts we need to know what our -- what our objectives are for the cigarette design. That includes who the smokers are that we -- we hope will smoke that new product.
For example, we want to steal market share from Marlboro. That's one of our big goals. And so then we develop action steps underneath that so what we -- we think we can steal smokers from a -- from Marlboro as a product by doing these changes to a cigarette. In some cases we may go out and -- and evaluate smokers' reaction to those products, their -- what they describe as taste characteristics, the overall acceptance. We do some consumer studies of different smoker groups; for example, how males may respond to that product versus females. So we do that kind of work to see if we've met our targets.
*13 Q. Do you do work to see whether or not people might be concerned about their health?
A. Again, that's a very general statement. Are you asking me do I go out and -- and poll smokers about what they believe about smoking and health?
Q. That would be one. Have you done that?
A. I have not done that.
Q. Okay. Has Reynolds done that?
A. I'm not entirely sure. I don't know.
Q. Do you -- and by "you" I mean Reynolds -- go out and determine whether or not people are concerned about their health, so therefore they're considering quitting?
A. I'm not entirely sure about that either. I don't know.
Q. Do you go out and investigate whether or not, if they're concerned about their health and therefore may quit, whether they would smoke a lower tar cigarette?
A. We've conducted some focus group studies of -- of -- along those lines, where we try to understand if smokers would ultimately want lower tar cigarettes and how that may -- and -- and what we can do as cigarette designers and product developers to improve the acceptance of ultra low tar products.
Q. So that you look at a smoker and you say that smoker has some options: A, she can quit, or B, she might smoke a different product; correct?
A. Well I think the smoker certainly has options. They can choose not to be a smoker, they can choose to be a smoker, and if they choose to be a smoker they can choose among a broad range of products in the market, going from the full- flavor/higher tar products all the way down to the very ultra low tar products that have tar and nicotine levels so low it's difficult to measure.
Q. And you've conducted focus groups on that precise issue; haven't you?
A. We've conducted focus groups on -- with smokers, as I recall, in a general sense, on smokers and their willingness/interest in ultra low tar products or low tar products, what they perceive as negatives of those. Because frankly, we want to improve consumer acceptance of the ultra low tar product category to try to make those products more acceptable so smokers will continue to move to lower and lower tar levels.
Q. You want to keep them in the marketplace; don't you, sir?
A. We certainly --
We offer products to smokers to purchase in the marketplace if they choose. Certainly we like to see more business. We'd like to see more business at the expense of the competitors. There's no question about that. The facts are that smokers are quitting in record numbers.
Q. Sir, you want to keep them in the marketplace; correct?
A. We obviously want our business to increase at the expense of competition. The -- the -- the number of smokers that are quitting is -- is growing. Smokers are quitting in record numbers. That does cut into our business.
Q. Well I didn't ask you about, you know, whether people are quitting or anything like that.
A. Uh-huh.
Q. I simply asked you a very simple question. Do you --
*14 MR. WEBER: Object to the commentary, Your Honor.
MR. CIRESI: Well --
THE COURT: Counsel --
MR. CIRESI: I agree it was commentary, Your Honor.
Q. Let me just repeat the question. And it's pretty simple. You want to keep them in the marketplace; correct?
A. I think that's an oversimplification. We provide products to smokers who want to smoke, and if you want to smoke, you provide a range of products.

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Q. And --
A. If a person -- excuse me. If a person wants to quit, it's their business, that's their choice. Obviously, as a company, we want to increase our market share, we want to beat our competition. But it's the smoker's choice.
Q. And to increase your market share, you got to keep the smokers in the market; don't you?
A. Or beat our competition and somehow have better products than our competition does, and steal market share from them because we have better products. That's the marching orders of product development, by the way.
Q. Now in marketing, then, one of the objectives of marketing is to keep people in the marketplace; correct?
MR. WEBER: Objection, Your Honor, A, it's been asked and answered, but also misstates what he said.
THE COURT: Well it hasn't been answered yet. You can answer that.
THE WITNESS: I'm sorry.
Q. One of the objectives of your marketing is to keep smokers in the marketplace to increase your market share; correct?
A. One of the objectives of our marketing, as I understand it, is to increase our market share. There are different ways to do it. Stealing the competition's smokers from different products; to try to keep -- or to give people options to quitting, for example, the very low tar products, those are options, and certainly every - - every smoker makes his own decision about whether to keep smoking, whether to move to low tar products, whether to -- or to quit.
Q. That --
I didn't ask you any of those things. I'm asking you --
A. You --
Q. -- about Reynolds. All right?
A. You -- you asked me about marketing objectives, and I said that one -- my understanding, the marketing objective is to increase our company's market share, share of market, so that our business grows, so that the Reynolds business grows at the expense of my competition.
Q. Now, sir, if -- and I want you to assume that there's been testimony here that one of the objectives of the marketing of the industry is to keep people in the market in order for any of the companies to increase their market share. You'd agree with that; correct?
MR. WEBER: Let me object to his characterization of his own witness's testimony, unless he's going to be specific about who it was, Your Honor. That's --
MR. CIRESI: If he has a legal objection, Your Honor --
MR. WEBER: That's a 403 objection.
THE COURT: Okay. Overruled.
MR. CIRESI: You may answer.
THE WITNESS: I'm sorry, can you say that again?
MR. CIRESI: Certainly. We'll have it read for you. Could you read it back, please, Mr. Stirewalt.
*15 (Record read by the court reporter.)
A. In a simplistic sense, yes, I agree with it. If smokers quit smoking, it hurts -- it reduces the market share of my company, certainly reduces the market share of my competitors. The facts are that smokers are quitting in record number, and I think the -- the major option we have at Reynolds is to, in fact, take share of market from our competitors. The number of smokers is -- is declining very rapidly.
Q. Now if a person is addicted, his or her choice to quit would be impaired; wouldn't it?
MR. WEBER: I want to object again, Your Honor, the witness did not testify about the subject of addiction on direct. It's beyond the scope.
THE COURT: Well he did testify that people are free to quit, so he can answer, answer this question.
A. If -- if by the word "addiction" you mean that people cannot quit because of an addiction to cigarettes, I don't agree with you. Addiction is a term that people use very loosely. There are a lot of different definitions for addiction. I believe that people can quit if they choose to. For some people it may be hard because it is a habit, no question about it; for some people who make up their mind, it's certainly very easy. There's differences among different people.
If you're suggesting that addiction means that people cannot quit, I don't agree with you.

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MR. CIRESI: I move to strike.
THE COURT: That answer will be stricken.
Q. It's a very simple question, doctor. I'm going to ask it again.
A. It's a very simple question --
Q. Excuse me.
A. -- but with a very confusing word, the word "addiction," because of the different definitions.
Q. If a person is addicted, their free choice is impaired; correct?
A. If --
It depends on the definition of "addiction."
Q. Are you an addiction specialist?
A. No. But you're asking me questions of addiction. I'm giving you my common-sense opinion on what I see, what I think in - - in the area of addiction.
Q. When did the definition -- let me back up.
What definitions are you talking about? You said you're not an expert. What definitions are you talking about?
A. In a general sense --
MR. WEBER: Your Honor, I'd object to this. The issue was created on cross by asking questions. The witness wasn't offered in it. And now it keeps expanding, and I think that's inappropriate.
THE COURT: Well the witness keeps answering about his version of addiction. He's entitled to ask the question on it. If he wants to give us his version of addiction, he's entitled to pursue it.
BY MR. CIRESI:
Q. Now sir, you talk about differing definitions. Are you talking about medical definitions of addiction?
A. I'm not an expert in the area of addiction. I do know that there are different definitions. For example, the World Health Organization, WH0, years ago had a very classical definition of addiction which included increase -- increased desire for whatever it is that's addictive, may include anti-social behavior, a number of things, and I'm saying this very loosely because I'm not an expert. I know that the -- the term "addiction" has changed at least in American society to where people consider many things addictive, like chocolate, the Internet, and so forth.
*16 Q. How many people per year does the Internet kill?
MR. WEBER: Objection, Your Honor, it's argumentative and beyond the scope.
THE COURT: Well it's not beyond the scope, but it is argumentative.
Q. Do you know if there's been any studies about how many people chocolate kills?
MR. WEBER: It's argumentative, Your Honor.
THE COURT: That is argumentative.
Q. The World Health Organization changed its definition of addiction in 1964; didn't it?
A. I think there have been some changes to the definition. I can't keep up with that, frankly.
Q. You don't know any other medical definitions of addiction; do you, sir?
A. My sense is that the term "addiction" is not used in a medical sense today in our society. I think it means different things to different people.
Q. The Surgeon General found that cigarette smoking was addictive in 1988; didn't he?
A. The Surgeon General in his 1988 report concluded that cigarette smoking was addictive.
Q. And that is a medical document; correct?
A. The Surgeon General report a medical document?
Q. Yes.
A. I wouldn't call it medical -- a medical/science document. I think it's a -- it's a government document that refers to chemistry, biology, and medicine.
Q. Well you've referred to the Surgeon General reports to select out certain passages in the course of your direct testimony; haven't you?
A. Well I've -- I've selected portions that speak to cigarette design. There are, in -- in a number of the Surgeon General's reports, discussions about cigarette design, attempts at selective reduction, attempts at general reduction. The one in front of us, for example, is -- is a good example. The title of it's "The Changing Cigarette," and the Surgeon General went in and evaluated not only biology, but he evaluated chemistry and changes that have occurred to the cigarette.
Q. And the government doesn't manufacture cigarettes; does it?

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A. I'm not entirely certain, but I don't think so.
Q. It is the defendant manufacturers here who manufacture cigarettes; correct?
A. Are you asking in this trial, the defendants manufacture cigarettes?
Q. Yes.
A. That's correct.
Q. They are the ones who have a responsibility, as you've said, to know their product; correct?
A. The cigarette manufacturers in this room have a responsibility to understand the product, to know what those products do, and to do the kind of work that I've already talked about, to understand smoke chemistry, to undergo the attempts that Reynolds and my competitors have undertaken to change smoke chemistry through cigarette design.
MR. CIRESI: Move to strike the answer in terms --
THE COURT: The last sentence will be stricken.
BY MR. CIRESI:
Q. Now what was the first low tar cigarette Reynolds put on the market?
A. How do you define low tar?
Q. Lower than a previous accepted -- well no, I take that back.
*17 How do you define low tar?
A. Okay. The -- using my definition, I think the first low tar cigarette was Vantage, as I recall. And Vantage in fact became the first successful low tar cigarette in -- in the -- in the U.S. market. It was introduced in the late '60s or around 1970, thereabouts.
Q. You didn't answer my question. My question was how do you define a low tar cigarette?
A. Within the industry and also very well known to the Federal Trade Commission and others, there are categories of tar levels that define what we call full-flavor or regular, sometimes called Winston Red or Marlboro Red; then there's a low tar category, and the low tar category generally goes from about six to about 14 milligrams per cigarette; there's an ultra low tar category that's -- that's five and under; except for a fourth category that's called the lowest, and those are the one- milligram cigarettes and the two-milligram cigarettes.
Q. Is there --
A. So I would call -- excuse me. So I would call a low tar product between about six and 14 milligrams. An ultra low tar is below that.
Q. Okay.
A. That's how I would define it.
Q. Thank you.
So your definition of a low tar cigarette is one that has tar between six and 14 milligrams?
A. Approximately, yes.
Q. What type of epidemiological studies did Reynolds conduct on Vantage before it placed it into the market to ascertain whether it was safer or not than other cigarettes?
A. I'm not aware that Reynolds has conducted epidemiological studies on Vantage, and there is no way to prove whether one cigarette is safer than another. We've already discussed that.
Q. Sir, my question is very simple. Did Reynolds conduct any epidemiological study to determine whether Vantage was safer or not before it
---------- Page 46 follows ----------
placed it into the stream of commerce for people to smoke?
A. I'm not aware that R. J. Reynolds conducted any epidemiological studies on Vantage before it placed it in the market, and there's no way to prove whether that tar reduction would have been safer or not.
Q. What type of animal studies were conducted on Vantage cigarettes before it was placed into the stream of commerce?
A. I don't know.
Q. Now you do know that when a product is classified as a drug, it must go through certain testing; correct?
A. I'm aware of that in a general sense. I'm certainly not intimately familiar with Food and Drug Administration regulations and law.
Q. Has to go through Phase I, Phase II and Phase III studies. You're that much aware of it; aren't you?
A. Sounds familiar.

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Q. Has to go through animal testing; correct?
MR. WEBER: Objection, Your Honor, unless he lays a foundation for this.
THE COURT: Well I think this is pretty common knowledge.
A. I think --
Well I'm not sure of the details of how the FDA decides on testing protocols. I know that there are Phase I, Phase II, Phase III clinical trials. I know that there's in many cases, probably, chemistry and biology required. Beyond that I don't know the details.
*18 Q. And what you have to show is that the product is safe and effective before it can be placed onto the market; correct?
A. That's my general understanding.
Q. Now you talked about Premier; correct?
A. Yes.
Q. Premier was not submitted to the FDA to go through that type of testing; was it?
A. Before its launch in the market?
Q. Yes.
A. No, it wasn't. Actually, we provided a lot of data to the FDA on Premier, both chemistry and biology, after Premier was attacked, as we talked about yesterday. There were a number of attacks to try to ban Premier in the marketplace as a drug-delivery device and for other reasons, and R. J. Reynolds presented quite a lot of information to the FDA to make it clear what that product is and that that product represents progress in the cigarette market.
MR. CIRESI: I move to strike the non-responsive portion of that response.
MR. WEBER: It was responsive, Your Honor.
THE COURT: Sorry?
MR. WEBER: That was a responsive answer. The question is what was submitted to the FDA.
MR. CIRESI: No, I did not ask what was submitted to the FDA.
MR. WEBER: He said, "Premier was not submitted to the FDA to go through that type of testing; was it?" And he went ahead and discussed the significance of it.
THE COURT: That's a different question.
MR. CIRESI: Yes.
THE COURT: Quite a bit different. Why don't you just re-ask the question.
Q. Let me re-ask it again.
Please, doctor, if you don't understand my question, again tell me, we'll get through this faster. All right?
A. But I think I understand your question. I'm trying to give you a complete response.
Q. No, it really --
A. Okay. But if we misunderstand, please --
Q. It really wasn't, sir. My question is very simple: Did Reynolds submit Premier to the Food and Drug Administration for approval? Did it?
A. R. J. Reynolds did not submit Premier to the FDA for approval as a drug- delivery device because Premier is a cigarette. We considered it a cigarette, and we presented extensive data to the FDA about that.
Q. And the FDA is today saying that cigarettes are drug- delivery devices; correct?
A. I think the FDA has taken that general position.
Q. And that position has been taken since 1994 when all of the documents started to come out; correct?
MR. WEBER: Objection, Your Honor, counsel is testifying.
THE COURT: Yeah. Rephrase it.
Q. Do you know when the FDA put took that position, sir?
A. Specifically, no, I do not.
Q. It was post-1994; wasn't it?
A. It was after '94 certainly, but I don't know a specific date.
Q. Now directing your attention then to the 1981 Surgeon General's report, do you know what the very first conclusion of that report was? Without looking at it, do you remember?
A. No, sir.
Q. Can you turn to the preface which bears the number Roman numeral v just at the bottom. Talks about the basic findings.
*19 A. Yes.
Q. Can we have the next page, please. Number one, "There is no safe cigarette and no safe level of consumption." Correct?

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A. That's what he concluded.
Q. And number two, "Cigarettes -- Smoking cigarettes with lower tar -- yields of 'tar' and nicotine reduces the risk of lung cancer and, to some extent, improves the smoker's chance for longer life, provided there is no compensatory increase in the amount smoked. However, the benefits are minimal in comparison with giving up cigarettes entirely. The single most effective way to reduce hazards of smoking continues to be that of quitting entirely." Correct?
A. You read that accurately, yes.
Q. Now the minimal benefit was based upon some epidemiological studies that had been conducted as of that date that took a look at a point in time; isn't that right?
A. I think that's generally correct. There were a number of epidemiological studies that were conducted that showed a statistically significant reduction in risk comparing filtered versus non-filtered cigarettes, with the filtered lower tar showing reduced lung cancer mortality rates. I think there's been some additional information trying to look at differences among the filtered cigarettes to see if lower tar products pose less risk, and I think, depending on who you talk to, you arrive at different conclusions. Certainly Samet in 1994, along with the same chart we saw yesterday, talked about lower tar cigarettes representing reduced risk.
Q. Sir, I asked you "at that time." '94 was later; right?
A. '94 was later.
Q. All right. In fact there have been an overwhelming number of later studies that have shown that low tar cigarettes are not safer; isn't that right?
MR. WEBER: Let me object. There's no foundation for that. He's testifying, Your Honor.
THE COURT: Okay. You can rephrase the question.
Q. Are you aware that there are later studies in abundance which show that there is no benefit to lower tar cigarettes?
A. I think -- and I'm not an epidemiologist, but my understanding of what's in the literatures, that there are some studies that suggest there is, there are some studies that suggest there isn't. I think there's -- it's -- it's clear to me that there has been a reduction comparing filtered versus non- filtered, and I think the experts tend to agree with that. There are some questions among the filtered products. As I said, I think Samet agreed that - - that there probably has been a reduction. My common sense tells me that less ought to be better, whether you can prove it in statistics, prove it with epidemiology or not.
Q. I didn't ask you for your common sense, I asked you about studies. Did you hear me?
A. I understand --
MR. WEBER: Objection to the commentary --
A. I understand --
MR. WEBER: Object to the commentary again, Your Honor.
THE COURT: Well ask another question.
Q. And sir, indeed, a seminar that you attended concluded that the claims of the industry that filtered cigarettes were safer were -- was patently false and the companies knew it; isn't that right?
*20 A. I remember something like that being concluded by that group. And I don't agree with it.
Q. Well this was the FTC seminar that you attended which you said you were invited to, isn't that right?
A. Yes, that's correct. And because I was there and -- and engaged in discussions with them doesn't mean I agree with every conclusion.
Q. Okay.
A. I agree with some of them.
Q. You agree with some of them; is that right?
A. That's what I said, yes.
Q. But the doctors there, which included the ones I asked you about yesterday --
Do you remember that, whether they said that you had concealed information? Do you recall that question?
MR. WEBER: Could we have a document reference, Your Honor, as to what we're dealing with?
Q. Do you -- do you recall the question yesterday?
THE COURT: Counsel, just a moment, please. Can you give counsel a document reference?
MR. CIRESI: Sure. It's 4994.
Q. I'm not on the document right now, doctor. Doctor, I'm not on the document right now.

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Do you recall yesterday that you said that with regard to the doctors that I asked you about, whether or not they had ever said that the industry had concealed, you said you never heard them say that.
A. I don't recall them saying that.
Q. You don't recall me asking you that, or --
A. I said I don't recall them saying that.
Q. All right. Can you turn to Exhibit 4994. That's in the other red rope right in front of you, sir, I believe on your right there.
Now that's "The FTC Cigarette Test Method for Determining Tar, Nicotine, and Carbon Monoxide Yields of U.S. Cigarettes," and this is the report of an NCI ad hoc committee of the President's Cancer Panel which you attended on December 5th and 6th of 1994; correct?
A. That's correct.
Q. This is after the documents started coming out regarding the industry; correct?
A. I think that's correct, yes.
Q. It is after Representative Waxman held his hearings in Congress in the spring of 1994; correct?
A. That's correct.
Q. And it was at that time where the CEOs of the defendant manufacturing companies swore under oath that nicotine was not addictive; correct?
MR. WEBER: Objection, Your Honor, this is well beyond the scope of direct.
THE COURT: No, you may answer.
A. That's correct.
Q. And it is after the FDA started looking into regulating cigarettes as drug-delivery devices; correct?
A. In a general sense, that's correct.
Q. Now if you go to the participants on page Roman numeral i -- ix, you'll start seeing the acknowledgments.
A. Yes.
Q. There was a representative from the Food and Drug Administration; correct?
A. That's correct. She was a lawyer.
Q. Dr. Henningfield, Ph.D.; correct?
A. Jack Henningfield, yes.
Q. Okay. And Michael Eriksen; correct?
A. That's correct, from CDC.
Q. And someone from the Federal Trade Commission?
A. Ms. Modell.
*21 Q. Shira Modell; correct?
A. Right. Right.
Q. The chairman of the panel was Harold Freeman; correct?
A. That's right.
Q. The executive secretary was Dr. Maureen Wilson; correct?
A. That's right.
Q. And then on the next page we see the panelists, do we not?
A. That's correct.
Q. And they're listed starting with a Dr. Bock, a Ph.D. from Miami, Florida?
A. That's correct.
Q. And then there are the invited speakers on the next page; is that correct?
A. Yes.
Q. And there you see Dr. Benowitz; correct?
A. That's right.
Q. And as you go down, you see Dr. Henningfield; correct?
He's a Ph.D.; isn't he?
A. Henningfield?
Q. Henningfield, yes.
A. Yes.
Q. He's a Ph.D.; correct, sir?
A. I don't really recall. I'm sorry.
Q. Well you -- you said you met with him and talked with him.
A. I can't recall whether he's a Ph.D. or an M.D.
Q. Well why don't you look right on that page. It says Ph.D.
A. It says Ph.D.
Q. Okay. And you see Dietrich Hoffmann. He's a Ph.D. too; isn't he? He's not a doctor.

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A. Yes, he's a chemist.
Q. And then if you go over on to the next page, you'll see Dr. Samet there; correct?
A. Yes.
Q. Okay. And then under the invited speakers there's two people listed as tobacco industry representatives. This is after they list the invited speakers; correct?
A. That is interesting. It's separated out; isn't it?
Q. It is, yes.
A. Yes.
Q. And one of them is you; correct?
A. That's right.
Q. Now you were able to fully participate in all of the discussions here; weren't you?
A. I was able to give a presentation to participate in the discussions. I participated in the discussions that involved my area of expertise, at least to a degree I did. I made it clear what I knew and believed in those discussions. What I was not able to do as an invited speaker was to deliberate with the committee -- with the central committee itself and arrive at conclusions. So I was essentially --
And all of these invited people, including Henningfield and Benowitz, were essentially information suppliers to this central committee.
Q. Well you were --
So you were only participating in some that you had expertise in; is that fair?
A. I was there to talk about cigarette design and what we know about the FTC numbers and the FTC method, and to provide my expertise. The point I'm making is that there was the FTC -- I mean, sorry, the NCI committee that actually deliberated in executive session separate from the invited speakers.
Q. That wasn't my question. My question was: You only participated in those sessions where you had some experience or work history?
A. Well I'm not sure I completely understand what you're asking me, but I was there for the conference, for -- for the entire conference.
Q. Well did you --
A. I participated where I had something to add or to -- to speak to. I mean in the areas of epidemiology, for example, I'm not an expert, there's -- there's really nothing I could add there. Experts were at the -- at the panel.
*22 Q. Didn't you participate in all discussions?
A. I said I was there for the entire meeting except for the executive session at the end.
Q. And in fact it's reported in this document that you did participate in all discussions; isn't it?
A. Yes. But I'm -- what I'm -- what I'm telling you is I can't participate in epidemiology discussions if I'm not an epidemiologist and really know the detail.
Q. And in fact you stated here that one of the things you can't talk about, because you're only a chemist, was to say whether or not nicotine was an important compound for taste characteristics.
A. I beg your pardon?
MR. CIRESI: Can you read the question back.
(Record read by the court reporter.)
MR. WEBER: Objection, Your Honor, that's contrary to the record. It's a misstatement.
THE COURT: I think you have to rephrase that, counsel.
MR. CIRESI: All right.
BY MR. CIRESI:
Q. Did you at this conference state that with regard --
Let's take tar first. With regard to the components of tar, you can't look into them and say it's a very important, tasteful and flavorful compound?
A. I don't remember saying that. I know that a number of constituents in tar are very flavorful compounds.
Q. Okay. Can you take a look at page 191.
A. Sure.
Q. I'd like to first of all read Dr. Freeman's question to you. "Dr. Townsend, I just want to ask one question, and it may be a little naive. Several times you have mentioned the value of tar in cigarettes because you say it is associated with taste. Even conceding that although it seems to be a thing that is killing people.
"But what about nicotine? What is the value of nicotine and cigarettes, and why could it not be dramatically reduced?
"DR. TOWNSEND: Nicotine, of course, is part of the smoking sensation. It does provide a sensation to the smoker. I think one of our competitors found that tobacco that had

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been treated to remove all the nicotine was not successful in the marketplace.
"More than that, just as I cannot look into the components of tar and say, this is a very important, tasteful, and flavorful compound. You know, I am not equipped as a scientist -- as a chemist to say nicotine is an important compound for this aspect of taste characteristics."
Now did you say that there?
A. That's what's quoted here. I didn't recall saying that.
Q. Now you received a copy of this; didn't you?
A. Yes.
Q. You've read it many times; haven't you?
A. I've read portions of it many times.
Q. And you've never written to the FTC and said, "I didn't say that. Please change it."
A. I think these are portions taken out of the discussion. I don't doubt that I said this, you know, I just don't remember it.
Q. Now can we go back, then, to the Roman numeral iii and the foreward. You remember you were talking about filters a little earlier and epidemiology? Do you recall that testimony?
*23 A. Yes.
Q. Now if you could just look at the top. "In response to the emerging scientific evidence that cigarette smoking posed a significant health risk to the user, in the early 1950's the major cigarette manufacturers began widespread promotion of filtered cigarettes to reassure smokers that, regardless of whatever unhealthy constituents were in cigarette smoke, filters were a 'scientific' breakthrough.
"Advertisements for Viceroy's 'health guard filter' stated, 'DENTISTS ADVISE -- Smoke VICEROYS -- The Nicotine and Tars Trapped by The Viceroy Filter CAN NEVER STAIN YOUR TEETH!' and 'Leading New York Doctor Tells His Patients What to Smoke, dash, Filtered Cigarette Smoke Is Better For Health. The Nicotine and Tars Trapped...Cannot Reach Mouth, Throat Or Lungs.' Chesterfield was 'Best for you, dash, low in nicotine, highest in quality,' while L&Ms were 'Just What the Doctor Ordered.' Lorillard Company -- Tobacco Company stressed its science-based Kent micronite filter (the original micronite filter was made of asbestos) and claimed it removed seven times more tar and nicotine than any other cigarette, which 'put Kent in a class all by itself where health protection is concerned.' Of course, we know today that not only were these claims patently false, but the cigarette companies knew it." Correct?
A. I see that passage, and I disagree with a number of things in those passages.
Q. But at least that's what the doctors in the FTC reported in 1994; correct?
A. That is in the foreward of the 1994 NCI report.
Q. So in 1954 we had a Frank Statement, which yesterday you said was false.
A. Excuse me, I think we were focusing on one sentence there; weren't we?
Q. Okay. Well, the one sentence was false and that related to the cigarettes didn't create any health problem for people.
A. What I said was that that one sentence, I believe, couldn't be scientifically in a strict sense supported because scientifically you can't prove a negative.
Q. Then we went through a series of questions, sir, --
A. Yes.
Q. -- and you finally admitted it was false. But the record will speak for itself.
MR. WEBER: I object to counsel testifying, Your Honor.
THE COURT: The objection is sustained.
Q. And we saw in 1995 the AMA, in the Journal of the American Medical Association, said the companies engaged in deceit; correct, sir?
A. What we have in 1954, as we talked about yesterday, was the Frank Statement. We've discussed that line in there. The 1994 NCI conference on the FTC test method, you read two passages out there. I said I don't agree with all the things it said in there. And then in 1995 we talked about the JAMA article, Journal of the American Medical Association, where a group of physicians talked about deceit among other things, and I said I don't agree with some of the things in there.
Q. Now if we go back, then, sir, to the 1981 Surgeon General's report, and again paragraph -- or Roman numeral vi, the conclusions or basic findings of the report, the first one, "There is no safe cigarette and no safe level of consumption," do you remember that?
*24 A. I'm sorry, sir, I'm just trying to refresh my memory on this for a second.
Q. Sure. It's page five one, Roman numeral vi. Do you have it?

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A. I -- I'm trying to refresh my memory on this document.
Q. Do you have that page, sir? Do you have that page?
A. I'm trying --
Q. Roman numeral five one.
A. I have Roman numeral vi in front of me.
Q. All right, thank you. Now --
A. I'm trying to refresh my memory on this document.
MR. CIRESI: Well Your Honor, may we proceed with the examination?
THE COURT: Proceed with your question.
Q. Sir, I want you to direct your attention to that page.
A. Okay.
Q. Are you there? Are you there, sir?
A. I'm on that page.
Q. Thank you.
Now number three, "It is not clear what reductions in risk may occur in the case of diseases other than lung cancer. The evidence in the case of cardiovascular disease is too limited to warrant a conclusion, nor is there enough information on which to base a judgment in the case of chronic obstructive lung disease." Correct?
A. That's what it says.
Q. And that was based on epidemiology that was available in 1981; correct?
A. This report is in 1981. I assume that the epidemiology that he's referring to is current.
Q. And in fact, it would have been a couple years before that, because the reports take a while to be issued; do they not?
A. Generally.
Q. Now the industry itself had not conducted any epidemiological studies to determine whether any of these cigarettes were safer in any way before they put them on the market as of 1981; had they?
A. I'm not aware of -- of any industry epidemiology studies. I don't know whether there has been some small ones or not, but I'm not aware of any, certainly, with my company. We have looked to empidemiologists outside the industry who have conducted massive studies. Some of these are referenced in the Surgeon General's report.
Q. Number four, "Carbon monoxide has been impugned as a harmful constituent of cigarette smoke. There is no evidence available, however, that permits a determination of changes in the risk of diseases due to variations in carbon monoxide levels." Do you see that?
A. Yes.
Q. As of 1981, the industry -- strike "the industry."
RJR, as of 1981, had not conducted any such studies; had they? Epidemiological studies.
A. Oh, epidemiological studies.
Q. Yes.
A. I'm not aware of any epidemiology studies that R. J. Reynolds had conducted at that point.
Q. Are you aware of any epidemiological studies that any of the rest of the industry had conducted at that point?
A. I'm not aware of such studies. I don't know whether they occurred or not. You know, we have looked at epidemiology from experts outside the industry, no question about it.
Q. I was asking about whether you, who manufactured the cigarettes, had conducted any such studies. That's what I asked.
*25 A. And I answered that question.
Q. Number five, "Smokers may increase the number of cigarettes they smoke and inhale more deeply when they switch to lower yield cigarettes. Compensatory behavior may negate any advantage of the lower yield product or even increase the health risk." Do you see that?
A. That's what it says here.
Q. Now did Reynolds provide all of its internal documents regarding compensation to the Surgeon General's committee?
A. For this report?
Q. Yes.
A. I'm not aware of such a case. We were con -- conducting some research in the area of compensation. I think it was a developing area, certainly within R. J. Reynolds research and development. We were trying to understand compensation better than we did, so we were doing research in the time.

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To -- to your specific question, I'm not aware that any of that information went to the Surgeon General for the preparation of the 1981 report.
Q. So the answer is no; correct?
A. I said I'm not aware whether any information went to the Surgeon General for the preparation of the 1981 report.
Q. Are you aware of whether any of the other industry companies submitted their internal information regarding compensation to the Surgeon General's committee?
A. I don't know.
Q. You don't know; correct?
A. I don't know.
Q. The next basic finding of the report, "The 'tar' and nicotine yields obtained by present testing methods do not correspond to the dosages that the individual smokers receive; in some cases they may seriously underestimate these dosages." Correct?
A. That's what it says.
Q. And the testing method being referred to there is the FTC testing method; correct?
A. That's my take on it. It does refer to the FTC test method for tar and nicotine, and then later for carbon monoxide.
I think everyone, including the FTC, recognized that the FTC test method was never intended to represent what any smoker gets, but it was to provide a comparative measure for smokers to make a choice in the marketplace.
Q. When did Reynolds tell the American public that the FTC method, which results in a nicotine and a tar number, is not intended to reflect what they would get? When did they tell the American public that?
A. I'm not aware that R. J. Reynolds told the American public that. The FTC commissioner did in 1967 or thereabouts when the method was established. Subsequent FTC commissioners also stated that.
Q. So that an individual smoker couldn't get that information from any product information that accompanied the cigarettes; correct?
A. I think that information had been presented by the FTC itself. I'm not aware, to your question, of any case where R. J. Reynolds or my competitors -- I don't -- I'm not sure about the competitors, but I'm not aware of any case where we've told consumers that what you get depends on how you smoke, that the FTC was in fact never intended to represent what a smoker gets. It's been clear from the Federal Trade Commission.
*26 Q. Do you supply with the cigarette packs or cartons the FTC findings on that?
A. We're required to provide FTC tar and nicotine in all advertising.
Q. That's not what I asked you.
A. And we do that.
Q. That's not what I asked you.
MR. WEBER: Your Honor, the witness was -- the witness was answering the question and he was interrupted.
MR. CIRESI: Your Honor, I respectfully submit the witness is not answering that question.
THE COURT: Okay. Re-ask your question.
Q. Does RJR supply the FTC statement that you just said, that it's not intended to say what an individual smoker might get, does RJR provide that with any product?
A. On the product?
Q. Yes.
A. No.
THE COURT: Counsel, --
Q. Does --
THE COURT: -- I'm sorry, I think we should take a recess.
THE CLERK: Court stands in recess.
(Recess taken.)
THE CLERK: Please rise. Ramsey County District Court is again in session.
(Jury enters the courtroom.)
THE CLERK: Please be seated.
THE COURT: Counsel.
MR. CIRESI: Thank you, Your Honor.
BY MR. CIRESI:
Q. Doctor, can you go back to the Surgeon General's report, again, page Roman numeral vi. It should be right in front of you, sir.
A. Oh. Yes, it is, sorry. Roman numeral vi. I'm there.
Q. The seventh basic finding is, quote, "A final question is unresolved, whether the new cigarettes being produced today introduce new risks through their design, filtering

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mechanisms, tobacco ingredients, or additives. The chief concern is additives. The Public Health Service has been unable to assess the relative risk -- risks of cigarette additives because information was not available from manufacturers as to what these additives are." Do you see that, sir?
A. I see that statement, yes.
Q. Now as of 1981, low tar cigarettes had been on the market since the 1960s; correct?
A. That's correct.
Q. About 16 years; correct?
A. Generally that's reasonable, yes.
Q. During that period of time, Reynolds did not provide any information to any government agency regarding tests of its additives; did it?
A. At the -- at 1981?
Q. Yes.
A. Up to 1981?
Up to 1981, I believe no information about the additives were provided. But the CEO of Reynolds did offer that to Congress, as I stated in direct testimony, as long as the trade-secret protection was guaranteed. So there was a -- it was offered. But I don't believe, to your question specifically, that it was provided, because I don't think it was asked for.
Q. The additives themselves were not provided; were they, sir?
A. The identity of the additives, I think that's exactly what Bowman Gray was -- was offering to Congress.
Q. The tests, if any, that had been conducted on additives were not provided in '81; were they?
A. I don't believe so. But again, I think there was an offer to Congress to provide the identity, and probably along with that information.
*27 Q. When was that offer made?
A. In 1964 in congressional testimony by Bowman Gray, who was then the CEO of Reynolds.
Q. Did Reynolds from 1964 to 1981 fight disclosure of additives?
A. On a --
To protect trade secrets, certainly there were a number of discussions and probably even fights, because R. J. Reynolds wanted to protect the trade- secret nature. But Bowman Gray made it clear that he would provide the identity to Congress if they would guarantee him trade-secret protection.
Q. Well one can offer to do something, if indeed one did offer to do something, and then fight about it for a long period of time; can't they?
A. I suppose that's possible, but that's not my sense of the situation.
Q. Indeed, it took an act of Congress to get information from the companies regarding additives; didn't it?
A. I don't remember whether it was an act of Congress. It may have been. Certainly in 1985 the industry did provide industry- wide disclosure of all the ingredients in a form that did protect each company's trade secrets or proprietary nature of those additives. I frankly don't recall whether it was an act of Congress. It may have been.
Q. The act of Congress was passed in October of 1984 and required disclosure within a year after that; did it not, sir?
A. I know that disclosure was required. I frankly don't -- didn't remember it was an act of Congress. That's all I'm saying.
Q. So you don't know what position Reynolds took from 1981 until Congress passed a law requiring disclosure; do you?
A. I know that Reynolds did take the position that it needed to protect its trade secrets on additives. I do know that there was an offer to disclose to Congress the nature of the additives we were using. Beyond that I don't know the details.
Q. You have no first-hand knowledge at all as to the details; do you, sir?
A. As to the details of what specifically?
Q. As to the details of what Reynolds did between 1981 and 1984, before Congress passed a bill requiring them to disclose additives on tobacco; do you?
A. I don't know the details of what happened between 1981 and 1984 on disclosure of additives. I do know that in 1985 or thereabouts we did disclose industry-wide lists of the additives on tobacco.
Q. You disclosed it through a law firm; correct?
A. That's correct.
Q. And you did not disclose the additives used in filters or in paper; did you?

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A. I'm not sure that that's exactly right. I think the flavoring materials that were used on -- on filters, filter flavors, may have been included in that list, to the best of my knowledge. Again, I'm -- you know, that wasn't my job responsibility, but I think that's correct.
Q. So you're only speculating.
A. I'm speculating based on my recollection of some discussions.
Q. You said yesterday you weren't going to speculate; you remember that? Do you remember that, sir?
A. I vaguely remember saying that, yes.
*28 Q. Now can you turn to the next page of the Surgeon General's report, and do you see at the top there it talks about the additives and working out procedures so cigarette manufacturers can disclose while still protecting legitimate interests in trade secrets?
A. I'm sorry, what paragraph are you on?
Q. Very top of the page.
A. I see discussion along those lines, yes.
Q. And again, you do know that four years later an act of Congress was passed; correct? Excuse me, three years later.
A. I've already told you I didn't -- didn't remember it being an act of Congress. I just don't know. I do know that we disclosed in roughly 1985 a list of ingredients.
Q. Now can you go to the second full paragraph, and do you see the -- about a third from the bottom, "Further study is necessary...?"
A. I see that sentence, yes.
Q. "Further study is necessary to examine the addictive nature of smoking and its impact on initiation, maintenance, and cessation, especially in light of the recent statement of the National Drug Advisory Council -- Drug Abuse Advisory Council that cigarette smoking is addictive. These questions cannot be answered quickly or without expenditure of scientific resources." Do you see that?
A. I see those two sentences, sure.
Q. Now did you read this part of the report in 1981 when it came out?
A. My recollection is probably I did, yes.
Q. Did you recommend to Reynolds that it disclose to the government all of its internal documents with respect to what it knew about addiction?
A. No. That's not my area of research. My -- my area is cigarette design and product development.
Q. Do you know if anyone at Reynolds suggested to management at Reynolds that it turn over to the government its internal knowledge and information with respect to what it knew about addiction of cigarette smoke?
A. I don't know.
Q. Do you know if anybody else in the industry turned over their internal documents regarding addiction?
A. I have no idea.
Q. You do know that those documents started coming out in 1994; don't you?
MR. WEBER: Objection, Your Honor, it's argumentative.
THE COURT: No, you may answer that.
A. I don't know the details of what you're suggesting there. I don't.
Q. Now can you go to the last paragraph on this page, Roman numeral vii -- excuse me, the last paragraph. "In the area of public information and education, much more needs to be done by the Government and by private health and educational agencies. The overriding objective must be to persuade young people not to take up smoking and to encourage present smokers to quit. Smokers of the lower yield cigarettes should be warned not to begin smoking more cigarettes or inhaling more deeply." Do you see that?
A. Yes.
Q. Did you read that portion of the Surgeon General's report in 1981?
A. I think in a general sense. I don't recall. I probably did.
Q. Did you suggest for Reynolds that they place a warning on their cigarette packaging or in their advertisements that lower yield cigarette smokers should not begin smoking more cigarettes or inhaling more deeply?
*29 A. Did I personally?
Q. Yes.
A. No.
Q. Did Reynolds ever put such a warning in any of its advertisements or on its packages?

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A. Not that I know of.
Q. Not even up to today; correct, sir?
A. That's correct.
Q. Can you direct your attention now to page five of the 1981 Surgeon General report.
Now the last two paragraphs are directed toward lower tar cigarettes; are they not, sir?
A. In a general sense, that's correct.
Q. And did you read this portion of the 1981 Surgeon General report when it was issued?
A. I would assume so, yes.
Q. And those two paragraphs read as follows. "The technology of producing lower 'tar' cigarettes has progressed well beyond a simple reduction in the amount of tobacco in the cigarette or the removal of a portion of the 'tar' by filtration. Present technology has achieved 'tar' reduction by alterations in plant genetics, changes in the cultivation and processing of the tobacco leaf, and changes in cigarette paper and filtration of the cigarette."
Now sir, you would agree with that; would you not?
A. In a general sense, that's right.
Q. And RJR had a number of internal tests that it had conducted on those types of changes in plant genetics and tar reduction by alterations and cultivation and processing of the tobacco leaf?
A. Ah --
Q. If you know.
A. Yeah, at -- at the point in 1981, I'm -- I don't know how much research we had conducted in plant genetics. I know we've conducted some since then, we have an experimental farm, and scientists who are experts in genetics and agronomy who have studied that. At the point in 1981, I don't know what the extent was. Certainly we've looked at changes in cultivation and growing practices and tried to give farmers direction in how to -- to increase their yields, produce better tobacco and the like. And we've had extensive research in the area of processing of tobacco leaf, and we've touched on some of them, like reconstituted tobacco, expanded tobacco and -- and a variety of other processing techniques that we've looked at. So I would certainly agree with that. And changes in the cigarette paper and filtration of the cigarette to include air dilution, to include some -- the techniques that we talked about yesterday, and -- and actually others as well. So in general, yes.
Q. And you had a lot of tests that you had conducted on, for example, the constituents that you used for expanded tobacco?
A. We've conducted -- we've conducted a lot of tests in a variety of areas. That's -- that's quite a general question.
Q. Well, you said that you used -- was it freon --
A. Freon.
Q. -- for expanded tobacco?
A. The first expansion process that we used used freon as an expansion agent or as a solvent, that's correct.
Q. Now I may have misunderstood or misheard you when you testified, but I think originally you said you stopped using that process in '88. And that was the day before yesterday. Do you remember that?
*30 A. The day before yesterday?
Q. Yes, I believe so.
A. Yeah. Yeah. I think Reynolds made a decision about that time to stop using it.
Q. But it continued to use it until 1993; didn't it?
A. We began intensive research to develop alternatives to the -- to the freon expansion. We looked at a number of alternatives, and over the next couple years began designing and building a very large plant using technology that we licensed from one of our competitors.
Q. I didn't ask you that, sir. It was a simple question. Did you continue to use it --
MR. WEBER: Object again to the commentary, Your Honor.
MR. CIRESI: Well Your Honor, I can move to strike the answer. I mean it -- it's a simple question.
MR. WEBER: Object to the additional commentary.
THE COURT: Just ask the question.
Q. Did you continue to use it until 1993, "yes" or "no?"
A. My understanding is that we shut down the freon plant in about 1993 and started up the DIET process expansion in -- the DIET expansion process in the same time.

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Q. Okay. So in 1989 and '90 you were using millions of pounds of freon; correct?
A. It's a high-volume process. There's certainly a large amount of -- of freon used in it.
Q. Well if I tell you that in answers to interrogatories, which were provided under oath in this case by RJR, that in 1989 there were in excess of 58 million pounds of freon used, you wouldn't dispute that; would you?
MR. WEBER: Could I have a reference, Your Honor?
MR. CIRESI: Yes. Answer to interrogatories, supplemental response dated February 14th, 1997.
MR. WEBER: Was that on the designation list?
MR. CIRESI: Yes, Exhibit 4915.
MR. WEBER: Thank you.
BY MR. CIRESI:
Q. Would you accept that, sir?
A. Well it -- it's a large-volume process. It would require a lot of freon to operate that large-volume process. I don't know the numbers of usage off the top of my head. I have no reason to doubt it, frankly.
Q. All right. Well we'll just put it up, I think that's probably a quicker way.
Here's the answer to interrogatory, sir. And if we go down to 1988 -- if you can move it up a little -- and in '88, 63,594,951 pounds of freon were used; correct?
A. That's what is said.
MR. WEBER: Objection, Your Honor.
A. And as I said --
MR. WEBER: Objection, Your Honor, the response says pounds of processed tobacco, if you read the introduction of this response which was just on the screen.
Q. Well that's --
G13 is with freon; correct?
A. G13 is tobacco that's been expanded by freon.
Q. Okay. And in 1988 there were 63,594,951 pounds of that tobacco; correct?
A. That's what it says.
Q. And in 1989 there were in excess of 58 million; correct?
A. Well 58,744,000 pounds.
Q. And in 1990, in excess of 58 million again; correct?
A. That's correct.
Q. In 1991, in excess of 36 million pounds; correct?
A. That's correct. And that may have been the time the first startup of the plant, before it achieved full production.
*31 Q. And then it went up again in 1992 to 53 million; correct?
A. That's what it says.
Q. And that's after your startup of production for the next commodity you were going to use to expand; correct?
A. Well again, I don't know. I'm -- you know, I know that it takes time to start up a new process of this size. I don't know exactly when the trial runs and startup was.
Q. And then in 1993, 20 million.
A. Yes.
Q. Almost 21 million; correct?
A. That's what it says, yes.
Q. Now did RJR, to your knowledge, do any long-term studies to determine the effect of freon on human beings?
A. There were a number of studies that Reynolds conducted, including major chemistry evaluations of products with and without freon expanded tobacco, thorough chemical investigations. There were some biological tests done, largely through outside contract research groups where I believe skin-painting was included, as well as a number of other biological assays. Quite a lot of biology.
Q. Were any long-term studies done to determine the effect of freon on human beings by Reynolds?
A. If you define "long-term studies" being skin-painting, I believe then the answer would be yes.
Q. Skin-painting is not a long-term study, it's a short animal study; isn't it, sir?
A. Well it's long term compared to other -- see, it's long term compared to some other biological assays that can be done very quickly.
Q. How long does it take --
A. It's -- it's a matter of definition.

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Q. How long does it take to do a skin-painting test?
A. Months.
Q. Months. Okay.
Now if I defined a long-term epidemiological study to determine freon effect on human beings, did you do any such study?
A. You mean like a 20- or 30-year epidemiological study?
Q. A five-year epidemiological study.
A. I don't know that one can do a five-year epidemiological study. I'm just not an expert in that area.
Q. It would be --
A. I don't know. I have never heard of one.
Q. It would be unethical to submit human beings to freon to see what would happen to them; wouldn't it?
A. My personal opinion is when one has a test product, yeah, it would be unethical to submit humans to the evaluation of -- of new materials that haven't been tested.
Q. And you talked about a decomposition product of freon; didn't you?
A. Yes. Scientists at Reynolds suspected there might be a decomposition product in the use of freon, and they examined the smoke for the presence of that compound intensively.
Q. (Writing formula on board) Is that the product?
A. That's the decomposition product that we looked for. It's called phosgene.
Q. Phosgene, isn't it?
A. Yes.
Q. That's the nerve gas used in World War I; isn't it?
A. Phosgene has been considered as a -- as a weapon.
Q. A weapon.
And did some of your competitors analyze and look at whether or not freon might present a risk of harm to smokers?
*32 A. I'm aware that --
Well as I said the other day, not only did we evaluate the chemistry intensively, and especially looked for the presence of phosgene intensively, we conducted biological studies on freon expanded tobacco. We collected the -- all that information together and presented it to a variety of people, including our -- many of our competitors, because some of our competitors were interested in licensing that process from us.
We provided that information to them. They evaluated that. In some cases would take that information to government bodies like the -- the Hunter Committee in England for their evaluation. Our competitors did evaluate all of our information --
Q. I didn't ask you --
A. -- to the extent that they may have --
I'm trying to answer your question, sir.
Q. Well, sir, I didn't ask you about the Hunter Committee. I asked you a simple question.
MR. WEBER: Object, he was trying to finish his answer, Your Honor. Counsel should wait until it's done.
THE COURT: Well at some point in time I think we have to get into the answer to the question that's been asked.
THE WITNESS: I was -- I was exactly there, Your Honor. I'm sorry.
Q. It's a very simple question. A "yes" or "no," doctor. Did some of your competitors evaluate freon? "Yes" or "no?"
A. Some of our competitors evaluated the freon process, they evaluated chemistry and biology, and a few of them may have done their own studies.
Q. Can you direct your attention to Exhibit 11224. It is in volume one. I believe it's behind you, sir. 11224.
I'm sorry, 11244. 11244.
A. Okay, 11244.
Q. Do you have it, sir?
A. Yes.
Q. Okay. This is a B.A.T document dated March 15th, 1984; correct?
A. It is March 1984.
Q. Upper right-hand corner.
A. It says -- it says B.A.T. Company Ltd.
MR. CIRESI: Okay. Your Honor, we'd offer Exhibit 11244.
MR. WEBER: No objection, Your Honor.

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THE COURT: Court will receive 11244.
BY MR. CIRESI:
Q. Now did Brown & Williamson and B.A.T use your G13, which was your freon expanded tobacco?
A. You mean did they use it commercially?
Q. Yes.
A. I don't remember.
Q. You don't remember. Okay.
Now G13 was what your freon expanded tobacco process was; correct?
A. Yes. That's our internal code for freon expanded tobacco, G13.
Q. And you see here that this is a "REVIEW OF FREON 11 IN TOBACCO PROCESSING?"
A. That's the title of this document.
Q. And Freon 11 is the type of freon that Reynolds used in its expanded tobacco process; correct?
A. That's correct.
Q. And do you see at number three there's a report here that says, "The use of G13 treated tobacco in cigarettes: (a) toxicology and (b) residual levels achieved in practice?"
A. Yes. It says "residue," not "residual." You're correct other than that.
Q. "Residue." I'm sorry. Thank you.
And G13, as you said, was your internal code for this; correct?
*33 A. That's correct.
Q. And if you could turn, sir, then, to the page which has at the top number four, which is the "TOXICOLOGY IN RELATION TO PROCESS RESIDUES IN CIGARETTES (Freon 11)." Do you see that?
A. Yes.
Q. Have you read this document before?
A. I scanned it quickly because you produced -- you designated it as a document for my cross-examination.
Q. Okay. Is that the first time you saw this document?
A. Yes.
Q. Paragraph one says, "Two prime sources have been used in this review, which has been restricted primarily to human data and to specific relevant aspects of the animal data. These are (a) Confidential report which Alan Rodgman of R. J. Reynolds and (b) a review from BIBRA. (Received February 1983)." Do you see that?
A. Yes.
Q. Now Dr. Alan Rodgman is from R. J. Reynolds; correct?
A. That's correct.
Q. And this document, then, goes on to look at and analyze both Dr. Rodgman's report and the review by BIBRA of Freon 11; doesn't it?
A. This appears to summarize a lot of the information, yes.
Q. Okay. And the first paragraph under what I just read states as follows: "The report and the review indicate, with a reasonable degree of confidence, that there is no definitive evidence which would suggest that Freon 11 is carcinogenic, via the oral or inhalation routes of administration." Correct?
A. That's what it says, that's correct.
Q. Then it goes on to state, "The mutagenic studies are also negative or equivocal" -- What does "equivocal" mean?
A. Neither increased nor decreased.
Q. Well they're also negative or equivocal, so you think equivocal means either increase or decrease?
A. Or uncertain.
Q. Uncertain. Isn't that what it means?
Pardon me?
A. Yes.
Q. That's what it means?
A. Well that -- that was one interpretation, yes.
Q. -- "and a single reproduction -- reproduction study indicated that there were no significant effects;" correct?
A. That's what it says, that's correct.
Q. Then he goes on to state, "The position is rather different, however, in relation to effects on the respiratory system and heart." Correct?
A. That's what it says.

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Q. Now with regard to the carcinogenic activity and whether it's equivocal and no significant effects --
You don't, I take it, know what he means by "significant effects," as to how many people that might affect --
A. I would take this to mean no statistically significant effects in the mutagenicity studies that he's referring to.
Q. All right. And statistical significance in the parlance of empidemiologists would be 95 percent certainty; correct?
A. Well empidemiologists use different -- different measures depending on what they're doing, I think.
Q. That would be --
A. I don't -- I don't know what the confidence level was of the researchers that concluded this.
Q. But if you use a confidence level of 95 percent, you're saying that there's only a five percent chance that the relationship happened by chance; isn't that right?
*34 A. Generally that's -- that's a reasonable explanation of it.
Q. So by looking at this, if it's statistically significant, we don't know what the percentage was that something may be carcinogenic; do we?
A. He's referring to mutagenic tests.
Q. Well --
A. Something like the Ames test. Mutagenicity.
Q. A mutagen can affect the genes; right?
A. Well it is mutation of genes, that's the measure. It's not carcinogenicity, though, it's mutagenicity.
Q. Well the mutation of genes has a role in the development of cancer; doesn't it, sir? If you know.
A. I don't know what the role of mutagenicity is in the formation of tumors or cancer, and I'm not sure anyone does.
MR. CIRESI: Well, move to strike the last portion, Your Honor.
THE COURT: The last portion will be stricken.
MR. WEBER: Just for the record, I'd object to that, Your Honor. He asked him the question what he knew, and the doctor said -- gave his opinion.
THE COURT: He said he didn't know, and then he added something which did not justify his not knowing.
BY MR. CIRESI:
Q. Now the Ames test, that was a test developed by Bruce Ames from, I think, the University of California at Berkeley; correct, sir?
A. It was Bruce Ames' test.
Q. Now if we go on to the respiratory system and heart, it's reported here that "In the animal studies, for example, exposure by the oral and inhalation routes appears to present no particular problems until equivocal results are noted in relation to the neuronal oedema, emphysema and lung oedema." Do you see that?
A. I see where it says that.
Q. Now lung edema and emphysema and neuronal edema, does that refer to chronic obstructive pulmonary disease?
A. I'm not an expert in this area. I think superficially I would agree with that.
Q. And "Pulmonary irritation, congestion and hemorrhage have also been reported following short (two to 24 hour) exposures to high levels of Freon 11." Do you see that?
A. I see where it says that.
Q. And that would refer to chronic obstructive pulmonary disease too; wouldn't it?
A. Well it says specifically pulmonary irritation, congestion and hemorrhage. I don't know what that means.
Q. All right. You don't know if that has a relationship to chronic obstructive pulmonary disease; --
A. That's correct.
Q. -- fair enough?
A. That's correct.
Q. All right. "It is also noted that these effects vary widely between species. Similarly, species dependent, effects on heart rate, hypotension and cardiac arrythmia have been reported in relation to the cardiovascular system." Do you see that?
A. You read that correctly.
Q. Now, was Reynolds aware of this with regard to Freon 11?

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A. I don't know what this is referring to and to what studies. I'm certainly not an expert in this area. I do know that Reynolds looked at it very carefully, drew conclusions, and I know that they presented that to the Hunter Committee in the U.K. and other scientists who saw no problems in it at the levels of freon that are residual in the tobacco.

*35 Q. I didn't ask you who they presented it to. Now I asked you a very simple question. Was Reynolds aware of what we just read, if you know?

A. I don't know whether Reynolds was aware of this paragraph in this document or the information contained in it. I don't know.

Q. Isn't it a fact that from this document we can see that this came from the confidential report by Alan Rodgman and a review from BIBRA?

A. This reference -- this entire page after number three references Dr. Rodgman and BIBRA. I don't -- I've read some of Dr. Rodgman's information on G13, and I've never seen this information in this paragraph that you're focused on in Dr. Rodgman's, so my assumption is it may have came from BIBRA. I don't know.

Q. Well let's read the next paragraph.

A. Okay.

Q. "Although these aspects are reviewed in some detail by Rodgman, they are eventually dismissed in relation to the levels of exposure from cigarettes containing G13 expanded tobacco." Correct?

A. That's what it says. And again, I don't remember that paragraph above there talking about respiratory -- or pulmonary issues in Dr. Rodgman's report. My suspicion is that it comes from BIBRA, perhaps. And I think the paragraph that you just referred to, "Although these aspects," probably refers to all the paragraphs above that. That would be my take on that.

Q. Oh. All the paragraphs include the one immediately preceding, which this scientist says was reviewed in some detail by Rodgman; correct?

A. That's correct. And I've just told you how I would interpret this memo or this -- this page based on the flow of information here.

Q. And Dr. Rodgman should point out everything to a competitor who is using freon in expanded tobacco being inhaled by consumers; shouldn't?

A. I think if we are presenting scientific data on the G13 process, we present everything we know.

Q. Okay. Let's read the next paragraph. "It is notable that Rodgman draws attention to an excellent review by Charlesworth." That's number one. That's reference number one; correct?

A. That's correct.

Q. And that was an article in Food and Cosmetics Toxicology in 1975; correct?

A. I'll have to go back to the references if you like.

Charlesworth, Food and Cosmetics Toxicology, 1975.

Q. Go back then. "Nevertheless, he fails to point out, as Charlesworth does, that the authors 'consider the use of Freon F11 and Freon F21 as aerosol propellants inadmissible...because they are more potent than other fluorocarbons in inducing cardiac arrythmia in the mouse."' Do you see that?

A. I see where it says that.

Q. What is cardiac arrythmia, if you know?

A. I -- I --

Well I'm not entirely certain, so I won't say, because I don't know.

Q. It's an irregular heart beat; isn't it?

A. That's what I would have said.

Q. Can lead to a heart attack; can't it?

A. I don't know to what extent that can happen.

Q. "Similarly Charlesworth commented that 'F11 increased pulmonary resistance and decreased pulmonary compliance and tidal volume in the rat.' Both of these concentrations were found at significantly lower concentrations." Do you see that?

*36 A. I see where it says that.

Q. Goes on to state, "Rodgman also refers directly to a paper by Belaj, et al, stating that the threshold for arrythmia in the monkey was five percent Freon 11. Although this statement is correct, no mention is made that there was a dose- related fall in blood pressure and depressed myocardial contractability at .05 percent, while heart rate acceleration was also demonstrated but was not dose-related." Do you see that?

A. I see that.

Q. So it's being reported --

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THE COURT: Counsel, counsel, I think you need to reread that, please. It's not .05 percent.
MR. CIRESI: 0.5 percent.
THE COURT: Thank you.
MR. CIRESI: Thank you, Your Honor.
Q. Is that correct, sir?
A. It says 0.5 percent in this paragraph.
Q. And is that a half of one percent?
A. It's a half of one percent, or five thousand parts per million.
Q. Five thousand parts per million.
A. Yes.
Q. "Aviado and Belaj draw the conclusion that 'the continued use of class 1 propellants (including F11) in aerosols should be seriously questioned."' Do you see that?
A. Yes, I do.
Q. Now smoke is an aerosol; isn't it?
A. Smoke is an aerosol in that it contains a particulate phase and a gas phase.
Q. And then it talks about "Human Studies;" correct?
A. That's the next section.
Q. "In addition to these effects noted in the animal studies, it is considered that the respiratory and cardiovascular evidence from humans gives rise for considerable concern, although this is not reflected strongly in the BIBRA review." Do you see that?
A. I see where it says that.
Q. And then it goes on, "For example, on page 9, the reviewer states that no serious effects were seen on the EEG of 10 subjects exposed to TCFM" --
And do you know what that is?
A. No.
Q. -- "for 15 or 45 seconds. Nevertheless, the reviewer notes 'most of the subjects developed respiratory sinus arrythmia and bradycardia and each exhibited a biphasic reduction in maximum expiratory flow rate. Following a 60 second exposure there was a transitory tachycardia with negative T waves in 2 of the subjects."' .
And these are human studies; correct, sir?
A. It doesn't explicitly say that.
Q. Well it's under the title "Human Studies." Do you see that?
A. Yes.
Q. And this is referring to effects on the respiratory and heart; isn't it?
A. I think that's a reasonable conclusion.
Q. And Reynolds was aware of this when it was using freon; wasn't it?
A. I don't know.
Q. Well didn't you look at the tests and knowledge that Reynolds had before you came in to testify that you've done this expanded tobacco, other things, and there were tests done, didn't you look at the tests?
A. I've looked at -- at quite a bit of information on G13, both the chemistry and -- and some of the biology that Reynolds has generated. And exposure levels in biological tests that Reynolds conducted or contractors for Reynolds conducted are -- are much, much, much lower than the levels that we referred to in the upper studies. We're talking about 5,000 parts per million; the residual levels in freon are extremely low, much -- much lower than that.
*37 Q. You didn't introduce any of those studies here; did you?
A. I beg your pardon?
Q. You didn't introduce any of those studies here; did you?
A. The chemistry and biology?
Q. Yes.
A. No.
Q. Not a one; did you?
A. No.
Q. You didn't introduce Dr. Rodgman's test; did you?
A. We didn't introduce any of the chemistry or biology associated with G13.
Q. Can you go on to the next page. This continues to review the literature on freon; doesn't it, sir?
A. It appears to, yes.
Q. And it's talking about human studies in that section; correct?
A. I believe we're still in the "Human Study" section, yes.

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Q. And do you see down in subparagraph (c) that it states, "The work of Valic also demonstrates that the effects of Freons can be sinogistic (F11 and F12). On this basis the possibility of synergistic effects of F11 and tobacco smoke cannot be overlooked." Do you see that?
A. I see where it says that.
Q. Now the studies that you did on freon, RJR, that you're aware of, did not deal with it in its synergism with cigarette smoke; did it?
A. The biological -- biological studies that I can recall in fact looked at freon present in tobacco smoke for those assays.
Q. Now I'm talking about the synergism of tobacco smoke and freon, to ascertain what effect, if any, over time they have on human beings.
A. Well it seems to me if freon is present in tobacco smoke, if there's any synergistic effects, they would be operative in the experiment when you do the biology with freon in tobacco smoke.
Q. Did you do those studies?
A. No. I've already said I'm not a biologist.
Q. Do you know what the protocols of those studies were?
A. I said I'm not a biologist. No.
Q. Do you know if human beings were used in those studies?
A. I've seen animal studies and -- and in vitro studies.
Q. In vivo is human being studies. Did you see any human being studies?
A. I don't remember seeing any.
Q. Now some conclusions are drawn; correct?
A. There's a conclusion section.
Q. "Whilst there are no grounds for refuting the review and appraisal made by BIBRA, it is apparent -- it is apparent that it was prepared as a balanced appraisal in relation to the industrial use of Freon, particularly at levels up to the threshold limit value." Correct?
A. That's what it says.
Q. If we go on to the next page, "In contrast BAT is concerned with the use of Freon in a tobacco expansion process and the subsequent use of the processed tobacco in cigarettes." Correct?
A. That's what it says.
Q. "It is submitted that our prime need is to consider the possible effects in circumstances where:"
Number one, "Large numbers of subjects are exposed;" correct?
A. That's what it says.
Q. That's what happens when people smoke. Large numbers are exposed; aren't they, sir?
A. I think that's fair.
Q. "(b) The exposure is to low residual levels but is frequently repeated." Do you see that?
*38 A. Yes.
Q. And smokers frequently ingest smoke; don't they?
A. They inhale smoke.
Q. Inhale, excuse me. Isn't that correct?
A. Smokers inhale smoke.
Q. Frequently; correct?
A. Sometimes. Often.
Q. Daily; correct?
A. Most smokers do.
Q. Monthly and yearly; correct?
A. Most smokers I would suppose.
Q. Over decades; correct?
A. Some smokers.
Q. "(c) Those exposed are people of all ages (16 upwards), in all states of health, which will certainly include those with pre-existing pulmonary and heart disease of any etiology." Correct?
A. That's what it says.
Q. Now, when you're talking about people of varying health and of all ages, we're talking about the environment of use into which it is intended that a product goes; aren't we?
A. I suppose that's one definition. We talked about various definitions.
Q. "(d) The exposure to Freon is coupled with simultaneous exposure to a wide -- very wide range of other chemicals which exist, mostly at very or extremely low levels, in

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cigarette smoke." Correct?
A. Yes.
Q. And sir, there are thousands of chemicals in cigarette smoke; correct?
A. There are thousands of chemicals in cigarette smoke present at extremely, extremely low levels.
Q. You at RJR don't even know what thousands of those chemicals are; do you?
A. I beg your pardon?
Q. You don't even know what those chemicals are; do you?
A. Oh, we know what many of the chemicals in the smoke or the constituents in smoke are. I've already testified that we certainly don't know all of the constituents in smoke, but we've worked hard to characterize cigarette smoke as thoroughly as -- as we can.
Q. There's --
A. We've made a lot of progress.
Q. There's thousands of constituents of smoke that you don't even know what they are; do you?
MR. WEBER: Let me object, how --
A question that says there are thousands of things you don't know about, it's nonsensical.
THE COURT: No, that wasn't the question. He may answer the question.
A. I've already made it clear that we've identified upwards of 4,800 constituents in smoke. I've also made it clear in earlier testimony here in my direct examination that there are certainly many, many more that we haven't yet identified. There's no question about that.
Q. Thousands; correct?
A. Depends on how sensitive the analytical techniques are.
Q. And --
A. As one develops more sensitive techniques, one can see more constituents present at even lower and lower levels.
Q. And when has Reynolds warned the consuming public in its advertisements, on its labels, or anywhere, that there are thousands of constituents in this product, we don't even know what they are? When has it done that?
A. Well you're assuming that there's thousands of unidentified compounds. That may be right, that may be -- may not be right; again, it depends on how sensitive your analytical techniques are.
*39 Q. That's not what I asked you. When did you warn about that?
A. I know, but -- I know, but I'm just addressing the assumption underneath your question.
Now your question is when did Reynolds warn the consumer --
Q. Yes.
A. -- about the presence of smoke constituents?
Q. No, about the fact that you don't know what's in your smoke. When have you warned them, in ads or on the label or in anything that accompanies the product?
A. Well Mr. Ciresi, I take great offense at the suggestion that we don't know what's in cigarette smoke. I've tried to testify here before this court and this jury that we've done extensive research over a long period of time to try to identify the constituents in smoke, and we've identified more than 4800 constituents, and we've sought ways to selectively reduce those constituents, and we've sought ways to reduce all the constituents through general reduction, and we've spent an extreme amount of scientific effort to try to do exactly what you're suggesting we haven't done, is characterize the smoke.
Are we finished characterizing the smoke? Certainly not.
Q. That's not my question.
A. There are certainly --
Q. Sir, that is not my question.
A. I was just about --
Q. In at least --
A. -- finished with my answer.
Q. No, I want to ask my question here. And see if you can answer my question.
A. I thought I was, sir.
Q. Well you weren't. And here's the question.
MR. WEBER: Let me object to the commentary again, Your Honor.
MR. CIRESI: Well I apologize for the commentary, Your Honor, and I will withdraw the commentary.

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THE COURT: Okay, please try to listen to the question and answer the question, if you will.
THE WITNESS: Yes, Your Honor. I'm -- I'm trying.
BY MR. CIRESI:
Q. Question is very simple, sir: When did Reynolds warn people that it didn't know all of the constituents that may number thousands that's in cigarette smoke? When?
A. I'm not aware my company, R. J. Reynolds, has ever warned consumers that there are constituents in smoke that we have yet to identify.
Q. And you don't know whether those constituents are carcinogenic or not since you don't even know what they are; isn't that right?
A. Well if one doesn't know the existence of certain constituents as yet in smoke, then you don't know what -- obviously what molecule it is, you wouldn't know whether they're carcinogenic at some particular level in some type of experiment.
Q. But if one wanted to read all the medical literature, we do know what disease is caused by smoking; don't we?
A. Again, I don't believe that it's scientifically demonstrated that smoking causes those diseases. Cigarette smoking clearly is a risk for a number of diseases, including lung cancer and others. Cigarette smokers as a group have a higher incidence of lung cancer, emphysema, cardiovascular disease, no question about it, but what's not scientifically demonstrated is that cigarette smoking in itself and by itself causes that disease.
*40 Q. Now in B.A.T's document, they go on to state their summary conclusions down at the bottom; don't they, sir?
A. There's a paragraph "In summary...."
Q. Okay. "In summary therefore, it is contended that prime consideration must be given to:
"(1) the particular circumstances of the cigarette industry and the attacks which are made against it." Correct?
A. That's what it says. I don't understand that, but -- okay.
Q. "the human data reported by Valic on healthy subjects which is supported and amplified by the animal data." Correct?
A. That's what it says.
Q. And when scientists look at whether a constituent or compound may cause injury, they look at animal data, and if they have human data, they certainly look at that; don't they, sir?
A. Yes.
Q. And over on the next page it says, "Conversely, the data related to industrial exposure of identified, relatively small numbers of 'healthy' subjects is regarded as less relevant." Correct?
A. That's what it says.
Q. Then it states, "On the basis of the evidence, it is recommended that the use of Freon 11 in tobacco products should be phased out as quickly as practicable." Correct?
A. That's what it says.
Q. "Given a satisfactory alternative, I would recommend that Freon 11 should not be regarded as an acceptable process residue." Correct?
A. That seems to be what this author is saying.
Q. And a process residue is something that remains in the product after the product is processed and is ready to go for use in the environment of use by the consumer; correct?
A. That's the way I would interpret that.
Q. Now this was in 1984; correct?
A. That's correct.
Q. And Reynolds continued to use this product for another nine years; correct?
A. That's probably approximately correct.
Q. And then you went to propane for expanded tobacco; didn't you?
A. No. In the United States, that's not correct.
Q. Did you use propane?
A. Not in the United States.
Q. Not in the United States. Okay.
So you only went to CO2 after that.
A. We went to a DIET process, so-called DIET process, which uses carbon dioxide. It's a process that we licensed from one of our competitors.
Q. How many millions, billions of cigarettes were sold with freon in it, sir?

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A. I don't know.
Q. How many years, again, was freon used?
A. I believe it was first commercialized right around 1970.
Q. And as we saw, it was used --
A. And dis --
Q. -- until 1993; right?
A. And discontinued in the early '90s.
Q. So for 23 years freon was used; correct?
A. That's a reasonable time period that we used freon as an expansion agent for expanded tobacco. No question.
Q. And during that period of time did Reynolds sell billions of cigarettes every single year?
A. I think that's fair.
Q. Now if you could go back to the '81 Surgeon General report, Exhibit 3838, and you'll recall we were at the bottom of page five, we were talking about low tar and filtered cigarettes, of which the expansion process was used in those cigarettes; correct, sir?
*41 A. Okay. I'm at the bottom of page five.
Q. And in the low tar/low nicotine cigarette, the expanded tobacco was used; isn't that right?
A. Are you reading from the text?
Q. No, I'm asking you a question.
A. Oh. You were referring me to the bottom of that page. I was looking for the text.
Q. All right. Fair enough.
A. I'm sorry, the question is --
Q. The expanded process was used in the low tar/low nicotine cigarettes; correct?
A. Expanded tobacco certainly is a major tool in developing low tar products.
Q. Now at the bottom, then, of this page five, it states, "The methods used in testing cigarettes by machine may not correspond to the way persons actually smoke. There is evidence to suggest that the cigarette yields measured by machine are very different from the yields that the consumer actually obtains by smoking the cigarette, due in part to the difference in patterns of smoking between testing machines and individual smokers. Therefore, 'tar' measurements of current cigarettes may not reflect the same estimate of risk provided by the 'tar' measurement of cigarettes manufactured at the time of the 1966 Public Health Service Review." Do you see that?
A. Yes.
Q. Now it was in 1966 that the Public Health Service stated that low tar cigarettes may be less hazardous; isn't it?
A. Yes. My recollection is the 1966 Public Health Service Review did in fact suggest that lower tar cigarettes would result in reduced risk.
Q. And it was thought that because of the dose exposure.
A. Well it was thought, in my understanding, because they believed, and I think many, many others believed and still believe, that there's a dose/response relationship between tar exposure and disease.
Q. But the epidemiology doesn't show that today; does it, sir?
A. A dose/response ratio --
Q. Yes.
A. -- relationship?
Q. Yes.
A. What epidemiology are you referring to?
Q. I'm referring to the totality of the epidemiological evidence which is in existence as of today. Doesn't show that; does it?
A. Well that's a very broad statement, "the totality of epidemiology." I think there's different people that maybe have concluded different things. Clearly I think some -- probably most scientists agree that -- that there is a reduced risk of non -- of filtered versus non-filtered products. I think there's a debate about the degree of risk reduction among filtered products.
And as I said earlier this morning, I think even Dr. Samet in 1994 agreed that probably lower tar cigarettes, filtered cigarettes in the lower -- in the lower exposure probably reduces the risk.
Q. He said that was only for lung cancer based on the CPS-I study, a snapshot in time; correct, sir?
MR. WEBER: Let me object. Could we have a citation to that, or was -- the document?

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Q. Are you aware of that, sir?
THE COURT: There was not -- I think he was referring to the testimony of Mr. Samet, --
*42 MR. CIRESI: That's right.
THE COURT: -- which I believe is an accurate reference.
Q. Isn't that right, sir?
A. I think Dr. Samet was referring to lung cancer as -- as was the empidemiologists who were comparing filtered versus non- filtered cigarettes.
Q. Right. And that referred to the CPS-I study, which did a snapshot in time; correct?
A. The CPS-I study was a snapshot over a period of time with a certain group of subjects.
Q. Now with regard to all of the other diseases, there's no epidemiology that shows low tar/low nicotine cigarettes are less harmful; is there?
A. I'm not sure which other diseases you're talking about. I'm certainly not an epidemiologist. I would agree that -- that empidemiologists have concluded that the studies conducted so far show no change for certain diseases.
Q. And in 1981, the Surgeon General's report on page six pointed out, "Another closely related concern about lower 'tar' and nicotine cigarettes is the use of flavorings and other chemical additives. In order to enhance consumer acceptability, flavoring substances are added to cigarettes; it may be that the lower the 'tar' yield, the more flavoring additives are used. It is impossible to make an assessment of the risks of these additives, as cigarette manufacturers are not required to reveal what additives they use. No agency of the federal government currently exercises oversight or regulatory authority in the manufacture of cigarette products." Did I read that correctly?
A. You read that accurately.
Q. "Further, no agency is empowered to require public or confidential exposure -- disclosure of the additives actually used by the cigarette manufacturers;" correct?
A. That's what it says.
Q. And it wasn't until information started coming out in 1994 that the FDA initiated proceedings to regulate cigarettes as a nicotine-delivery device; isn't that right, sir?
A. If you're suggesting that the information only became available in 1994 which prompted the FDA to take the stand that it took, I don't think that's completely accurate because the industry was providing quite a lot of information to the Department of Health and Human Services on additives. We've already talked about that. In 1994 the industry also publicly disclosed all of the additives that it uses in commercial products.
Q. It was in 1994, after the documents started coming out, that the FDA commenced its investigation into regulating cigarettes as a drug-delivery device; isn't that right?
A. Which documents are you referring to?
Q. I'm referring to the documents that came out in the Waxman Committee. I'm referring to documents that were produced in this case.
A. I don't know to what extent the different events prompted the FDA to do what it's done.
Q. Have you read --
A. I don't know.
Q. -- Mr. Bible's testimony in this case with regard to the FDA's findings?
A. I don't think I read any of Mr. Bible's testimony.
*43 MR. CIRESI: Your Honor, that might be a good place to break for lunch.
THE COURT: All right. We'll take a recess for lunch, reconvene at 2:00 o'clock.
THE CLERK: Court stands in recess until 2:00 o'clock.
(Recess taken.)

*1 TITLE: STATE OF MINNESOTA AND BLUE CROSS AND BLUE SHIELD OF MINNESOTA, PLAINTIFFS, V. PHILIP MORRIS, INC., ET. AL., DEFENDANTS.
TOPIC: TRIAL TRANSCRIPT
TRANSCRIPT OF PROCEEDINGS
DOCKET-NUMBER: C1-94-8565
VENUE: Minnesota District Court, Second Judicial District, Ramsey County.
YEAR: April 1, 1998
P.M. Session
JUDGE: Hon. Judge Kenneth J. Fitzpatrick, Chief Judge
AFTERNOON SESSION.

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THE CLERK: All rise. Court is again in session.
(Jury enters the courtroom.)
THE CLERK: Please be seated.
THE COURT: Counsel.
MR. CIRESI: Thank you, Your Honor.
BY MR. CIRESI:
Q. Doctor, if you can turn your attention again to the 1981 Surgeon General's report, "The Changing Cigarette."
A. Okay.
Q. And if you turn to the page that has number six in the lower left-hand corner. You'll recall that's where we were when we broke.
A. Okay.
Q. Do you recall I was asking you a series of questions with regard to whether -- to the statement, "Further, no agency is empowered to require a public or confidential disclosure of the additives actually in use by the cigarette manufacturers?" Do you see that?
A. I remember that.
Q. Okay. Now if you can turn over to the next page then, please, page seven, and at the bottom there is stated as following, right at the very bottom, "As discussed in this Report...," do you see that point, doctor?
A. Yes. Four lines up.
Q. "As discussed in this Report, the recent reductions in 'tar' yield have been accomplished by altering tobacco growth and processing and by changes in cigarette manufacture. These changes may have produced a 'tar' with a different composition from that of old higher 'tar' cigarettes, and may have changed the concentrations of some of the constituents contained in the gas phase of the smoke.
"An additional concern is that the production of cigarettes with lower 'tar' and nicotine yields may involve the increasing use of additives for tobacco processing or flavoring. Some additives available for use are either known or suspect carcinogens or give rise to carcinogenic substances when burned. The use of these additives may negate beneficial effects of the reduction of 'tar' yield, or might pose increased or new and different disease risks. Therefore, the 'tar' yield of cigarettes currently being manufactured probably cannot be used as a precise measure of current smoke exposure risk, nor be compared quantitatively with the smoke exposure risk of the old higher 'tar' cigarettes. The major prospective studies that provide the data for our assessment of smoking-related health risks examined persons who smoked these older, higher 'tar' cigarettes."
*2 Now sir, in 1981 did you read that portion of the 1981 Surgeon General's report?
A. I feel like I probably did, certainly.
Q. Okay. Do you know if others at Reynolds read that portion of the 1981 Surgeon General report?
A. Oh, my speculation is that probably a number of people at Reynolds read that passage.
Q. Did any of the advertising or marketing information of Reynolds in 1981 or subsequent years contain this type of information for dissemination to the consumer?
MR. WEBER: Objection, Your Honor, advertising was not permitted as part of the direct examination, advertising and marketing.
THE COURT: Well you can just answer that if you know of your own knowledge.
A. Not that I'm aware of. A lot of the information or -- or what's in these two paragraphs that you read is -- is pretty speculative, and the fact is that we did evaluate additives and do a number of things that's questioned in here. But I'm not aware of -- of that event that you're suggesting.
MR. CIRESI: I move to strike everything starting with "A lot of...."
THE COURT: Okay, that answer will be stricken.
Please listen to the question. Try and answer the question, please.
THE WITNESS: Yes, Your Honor.
Q. This goes on to state, "A third assumption in equating 'tar' yield with smoke exposure is that the 'tar' yield of a smoke -- machine-smoked cigarette be equal to or at least proportional to the yield of the same cigarette when it is consumed by the smoker." Do you see that?
A. I see that.
Q. And that is the FTC test being referenced there; is it not, sir? Sir?
A. I -- I'm -- I'm reading it, please.

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I believe that does reference the FTC standardized smoking method.
Q. All right. And did Reynolds at the time of the 1981 report have information within its files with regard to whether or not smokers who smoke cigarettes did so differently than the FTC machine?
A. In 1981.
Q. Yes.
A. Reynolds was conducting research in 1981 trying to understand the different puffing behavior of -- of smokers with -- with cigarettes. There was prior literature, certainly, that cigarette smokers smoked very differently from one another, and also a single cigarette smoker will smoke differently from puff to puff and from cigarette to cigarette. I think there was some information about that in 1981.
Q. All right. Was that information provided to the Surgeon General's committee?
A. I'm not aware that that specific information was provided to the specific Surgeon General's committee. A lot of that information was already in the public domain.
Q. I want --
Reynolds information?
A. Smoker-behavior research was available in the public domain.
Q. I'm asking about Reynolds information. Was that information provided to the Surgeon General's committee?
A. Not that I'm aware of.
Q. Now you are aware that the tobacco industry could have supplied anything it wanted to to the Surgeon General's committee to have it take that information into account; correct?
*3 A. Well I don't know exactly how the process works. I really don't know.
Q. You don't.
Do you know if Reynolds provided anything to the 1981 Surgeon General's committee regarding the changing cigarette?
A. I don't know.
Q. Have you ever made an investigation to ascertain whether it did or did not?
A. To the '81 Surgeon General report? I don't know.
Q. You don't know if you've undertaken an investigation?
A. No, I thought that was a different question.
I have never undertaken an investigation to determine if Reynolds ever provided anything to the Surgeon General for the 1981 report.
Q. Do you know if anyone at Reynolds has ever conducted such an investigation to ascertain whether Reynolds provided information concerning smoker compensation to the 1981 Surgeon General's committee?
A. I'm not aware of such case.
Q. Can you direct your attention to page 24 of the Surgeon General's report. At this section of the report, sir, "Research Recommendations From The Working Meeting 'Research Needs On Low- Yield Cigarettes"' is set forth; correct?
A. That's the title of one section.
Q. Did you read this at the time that you first reviewed the Surgeon General's report?
A. There's no doubt that I did. I think I did read this.
Q. And you see here that no attempt had been made by the Surgeon General to place these research recommendations in order of priority; correct?
A. That's what it says at the end of that first paragraph.
Q. Now the first bullet point states as follows: "It must be determined whether lower 'tar' and nicotine cigarettes change smoking behavior. For instance, compensatory adjustment, such as deeper, longer, and more frequent puffs, may turn a nominally lower yield cigarette into a higher yield cigarette. Studies are needed to determine whether adjustments made by smokers of lower 'tar' and nicotine cigarettes may inadvertently increase their exposure to 'tar' and carbon monoxide beyond that expected from a less intensely smoked higher yield cigarette." Do you see that?
A. I see that.
Q. Now when you read that in '81, did you suggest to anyone at Reynolds that they provide the information it had internally about smokers' compensation to the Surgeon General's committee?
A. Did I personally?
Q. Yes.
A. No.
Q. Did you --
A. We were -- we were conducting research in this area at the time.

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Q. Did you suggest to anyone at Reynolds that you publish the internal information that you had regarding smokers' compensation at that time?
A. The research was underway and subsequently some of that work has been published, but at the time in 1981, I'm not aware that the data were in -- in a state of completion to be published.
Q. You weren't conducting those studies; were you, sir?
A. I wasn't personally, no.
Q. You didn't set the protocols for those studies; did you?
A. No. We had scientists who were assigned to those projects who conducted smoking-behavior research.
*4 Q. And you don't know what those protocols were; do you?
A. Well I don't think that's completely fair. I know in a general sense some of the protocols for some of the experiments that were conducted.
Q. Can you state the protocol for any given study?
A. Yes.
Q. Which study? Who was conducting it?
A. I can think of one study that was a large smoker-behavior study conducted about the time of this 1981 report where we evaluated smoking behavior for several hundred subjects in Atlanta, Georgia.
Q. Who was in charge --
A. We --
Q. -- of this?
MR. WEBER: Excuse me, Your Honor, he just asked to have the study explained and the doctor was explaining it.
MR. CIRESI: I believe I asked who was conducting it. That was my question.
A. Dr. John Reynolds and Dr. John Robinson were conducting it.
Now what they did was develop actually flow probes to evaluate flow profiles when a smoker draws on the cigarette, and then the protocol was to evaluate smokers smoking one tar level cigarette and then switching those smokers to other tar level cigarettes, usually lower, and measuring how they changed their puffing behavior, and then separately to take those data, come back to a computer-driven smoking machine, feed the data into a smoking machine and have the smoking machine replicate those puffs and measure tar and nicotine.
Q. Do you have that study here?
A. Not with me.
Q. Can you go on, then, to the next bullet point. "Because of changes in cigarette composition, further retrospective and prospective epidemiological studies are needed to assess the health effects of these changes. A primary need is to establish whether there are measurable differences in morbidity between smokers of higher 'tar' and nicotine cigarettes and smokers of lower 'tar' and nicotine cigarettes."
Now morbidity is disease; correct?
A. I believe so, yes.
Q. And I believe you said that as of this time Reynolds had not conducted any such type of epidemiological studies; had they?
A. I'm not aware of any epidemiological studies at this time.
Q. Do you know if anyone in the industry had conducted such an epidemiological study as of that time?
A. I'm not aware of any cases. I know there's been a lot of epidemiology done outside the industry.
Q. Goes on to state that "Efforts should include ongoing long-term studies that are adaptable to such epidemiologic inquiry;" correct?
A. That's what it says.
Q. And that epidemiological inquiry was to look at morbidity of smokers of higher tar and lower tar cigarettes; correct?
A. I think that would be my take on this.
Q. If we go on to the next page, we see a list of other types of studies that the Surgeon General found needed to be done in order to compare higher tar to lower tar cigarettes to ascertain morbidity or disease caused by those cigarettes; correct?
A. Well I think what he -- what he did in setting this up was he said it's an overview of research recommendations submitted as a result of the working group. He didn't go into quite the detail in this setup that you did, but --
*5 Q. Well he's talking about animal testing; correct?
A. Well these are additional points following the first two points that we've already covered that were the working group's -- or the working meeting's overall research

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recommendations. That's what he said.
Q. For example, the third bullet point down talks about "Additional emphasis should be given to both human and animal research models for the developmental mechanism of chronic obstructive pulmonary disease and its possible alteration by lower 'tar' and nicotine cigarettes;" correct?
A. That's what it says, that's correct.
Q. And the first bullet point talks about "The increased use of nonhuman primate models...;" correct?
A. The first one talks about nonhuman primate models.
Q. Those are animal studies; correct, sir?
A. Yes.
Q. Now all of these types of studies could have been done by Reynolds prior to the time you put any low tar cigarette on the market; couldn't they?
A. No, I don't agree with that at all. I think biology has evolved and toxicology has evolved over the years, and I -- I don't think even in 1981 we could look back to a time before that without having the prior knowledge in the development of -- of test methodology, including animal test methodology. I mean the things that are --
Some of the things that are recommended here I think make a lot of sense because there's not a measure of progress to clearly define whether one cigarette design is safer or reduced risk than another. That's my take on this.
Q. Well let me see if we can go to a different take. Epidemiological studies, long-term, could have been conducted before a different product was put on the market; couldn't they?
A. You mean by R. J. Reynolds?
Q. Yes.
A. We're not experts and we don't have experts in epidemiology. I suppose one -- we could go out and hire experts. But to do epidemiology takes a long period of time, usually 20 -- 20 years plus to do an epidemiological study.
Q. So instead it was tested on the smokers in the marketplace; wasn't it, sir?
A. The low tar cigarettes were placed in the market, and -- and you're suggesting that Reynolds should have conducted long-term epidemiology before it placed those low tar products in the market in spite of the fact that the public health community and the medical community were calling for low tar products. Common sense, at least to me, suggests that the lower tar levels ought to be better, and if we waited 20 years to conduct an epidemiology test to determine whether or not in fact there is reduced risk, then we're not responding to the calls of the scientific community.
Q. Well we'll get to who called for this in the scientific community in a minute. My question wasn't whether or not somebody did call for it in the scientific community at all, my question was whether Reynolds could have conducted studies before it put a product into the marketplace.
*6 A. And I don't think that would have been the reasonable or responsible course to take. I think the reasonable and responsible course to take was to -- to look at the theories and -- and look to the medical community and the Public Health Service, and they recommended the use of lower tars -- tar products, and we did that.
Q. You mean Mr. Gori or Dr. Gori recommended that?
A. A number of people have.
Q. We'll get to Dr. Gori.
And Dr. Russell you say recommended that; is that right? Is that right?
A. Oh, he's one.
Q. Okay. Can you point to any directive from the FTC or any governmental agency that said we want you to manufacture and sell low tar cigarettes?
A. The 1966 Public Health Service report suggested that lower tar cigarettes ought to be better. A number of --
Q. That's not what I asked. I asked you are you aware --
MR. WEBER: Let me object, Your Honor. He was answering the question and he was interrupted again.
THE COURT: I don't think that was the question that he asked. Re-ask the question, please.
Q. Let me ask the question again.
Can you point to any directive from the FTC or any government agency that said we want you to manufacture and sell low tar cigarettes?
A. If you're speaking to a very explicit directive from an agency of the government which says okay, cigarette industry, we want you to do this, the answer is no, I can't point to such a directive. The whole issue was one of what directions ought to be

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better, and that's what the public health community was speaking to.
Q. What the public health community said in 1981 in its basic findings, number one, is that there is no safe cigarette and no safe level of consumption; didn't it?
A. I've heard that phrase.
Q. Well you just saw it. It's right in the Surgeon General's report; isn't it, sir?
A. I believe it -- I believe it is.
Q. It's the number one basic finding of the report; correct?
A. Well let me go back and look.
Q. Roman numeral vi.
A. Okay. At the top of the page on Roman numeral vi it says, number one, "There is no safe cigarette and no safe level of consumption."
Q. That's what the Surgeon General said about the changing cigarette in 1981; correct?
A. I think that's part of what the Surgeon General said in his 1981 report. I think there's a lot more.
Q. Now if you can direct your attention to page 26, the page after the one we were just on regarding recommended studies, the first bullet point is "More data are also needed on cigarette flavor additives and their combustion products. Flavoring agents and additives should be studied by cigarette companies for carcinogenicity and toxicity before their commercial use is permitted, and the results of such studies should be made available." Do you see that?
A. I see that.
Q. Now do you agree with that statement?
A. I agree with, I think, the intent of this statement, which is that -- that ingredients should be thoroughly evaluated. I think this statement goes on to suggest regulation, that certain hurdles must be passed before their commercial use is permitted. That's not something I can -- I can agree one way or the other, that's -- that's a matter of law, I think, or regulations. But I certainly do agree that ingredients need to be evaluated thoroughly, and that's what we do at Reynolds.
*7 Q. Before their commercial use is permitted, and the results should be made available; correct?
A. Before their commercial use is permitted is --
Before ingredients are used commercially, the results should be available for thorough evaluation so that toxicologists and biologists can make some determination on the likelihood of risk.
Q. That's the type of evaluation that goes on pursuant to the FDA process; correct?
A. Well I don't know what the FDA process is in detail. I do know what the R. J. Reynolds process is.
Q. So your answer is you can't answer what the FDA does generally; correct?
A. Well you didn't ask me that directly. But if that's your question, I don't know specifically what the FDA requires in evaluating some material.
Q. But you do know, as you testified this morning, that there has to be a finding that a product is safe and effective before it's allowed to be placed into the stream of commerce by the FDA; correct, sir?
A. I'm not an expert in this area, I don't understand FDA law or FDA regulations, but my general understanding is that for a category of products called drug-delivery devices, that there has to be some demonstration that that drug-delivery device is safe and effective as used.
Q. Now the ingredients that had been used by Reynolds had not been tested before the cigarettes were put on the market; correct?
A. Well I don't think it's that black and white. I think there are a number --
Additives have been used for a long period of time in cigarettes. As science developed and we started to begin understanding things better, I think scientists at Reynolds started evaluating some of the additives that were in cigarettes, and a number were taken out because of suspected issues with the various additives, some after -- after testing remained. I think in -- and then somewhat later on as -- as our knowledge developed to -- to a better position, we established a very rigorous approach, a very detailed approach to evaluating additives.
Don't -- don't forget that in the early '50s and '60s, and even into the ' 70s, before this report, we were spending most of our research effort trying to understand constituents in smoke and how to reduce those constituents in smoke.
Q. The fact is, sir, that the lawyers were thwarting the scientists' desire to look at testing certain additives; isn't that right?
MR. WEBER: Objection, Your Honor. Counsel is testifying.

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THE COURT: Rephrase the question, counsel.
BY MR. CIRESI:
Q. Do you know if the lawyers were thwarting scientists' desires to test certain ingredients or additives?
A. In my entire 20 years at R. J. Reynolds, I've never seen that happen.
Q. Can you direct your attention, please, to Exhibit 21504, 21504, volume two. Now this is a document of the R. J. Reynolds Company. It has pursuant to court order been redacted. It deals with smoking and health litigation regarding certain cigarette ingredients; correct?
*8 MR. WEBER: Your Honor, I would object for the reasons the court is aware under 403 and others with respect to any use on this issue.
THE COURT: I don't understand your objection, counsel.
MR. WEBER: This is one of the documents we discussed earlier with the court. I just wanted for the record to advise the court that we do have objections to any use of this document for the reasons we previously expressed, including the Rule 403 reason.
THE COURT: Okay. And didn't the court rule on that?
MR. WEBER: I just wanted to make sure the record as it happened here was clear, Your Honor.
THE COURT: I think the court's ruled on it several times and the record is clear, and you probably don't have to clarify it again.
MR. WEBER: Okay. Thank you, Your Honor.
BY MR. CIRESI:
Q. R. J. Reynolds document; correct, sir?
A. It says "R. J. REYNOLDS TOBACCO COMPANY" at the top.
Q. And if you go to the last page, do you see three names, John Edwards, --
A. Yes.
Q. -- Maynard Thomson, Robert McDermott?
A. Yes.
Q. You know them; don't you?
A. I don't know John Edwards. I don't know Maynard Thomson. I do know Robert McDermott.
Q. Mr. McDermott is Mr. Weber's partner; correct?
A. He works in the same firm as Mr. Weber.
Q. Jones Day law firm; correct?
A. That's correct.
Q. Can you direct your attention to the third page of that document. Have you seen this before, sir?
A. Not until, I believe, last night, because you designated this for my cross-examination.
Q. And the first time you looked at it was last night?
A. I believe so. I've never -- I've never seen it before I came to this -- to this city this time.
Q. It may have been a couple days before that, but at least it was while you were here; correct?
A. Absolutely.
Q. Okay. You never got a copy of this document?
A. No.
Q. Page three. "Both the industry and its critics have conducted the bulk of their research using 'Kentucky Reference Cigarettes.' Remember the reference to that yesterday?
A. Yes.
Q. You were talking about --
A. I remember --
Q. -- what pH was and everything. You remember that?
A. I remember referencing Kentucky reference cigarettes in the discussion on Premier.
Q. What is pH anyway? What does that "pH" stand for?
A. pH?
Q. Yes.
A. Well it's a measure of acidity or basicity.
Q. But what does "pH" mean?
A. That's a good question. I'm not sure.
Q. You don't know; do you, sir? Do you?
A. No.

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Q. portens Hydrogen; --
A. Okay.
Q. -- isn't it? Do you know what --
A. I don't know.
Q. Do you know what portens Hydrogen is?
A. Well I think you're going to tell me.
Q. Do you know?
A. I said no.
Q. No. The force of hydrogens; isn't it? Isn't it, sir?
A. I don't know.
Q. You don't know.
A. I guess you're telling me.
Q. And you didn't know this morning what TCFM was; did you?
*9 A. What is TCFM?
Q. It's Freon 11.
A. Ah.
Q. Trichlorofluoromethane; isn't it?
A. We call it F11.
Q. You didn't know its pure chemical name; did you? Did you, sir?
A. I know its trichlorofluoromethane. I've never seen it referred to by those initials. We internally use F11.
Q. You've never seen the chemical acronym for Freon 11; is that your testimony as a chemist?
A. That's not a chemical acronym that we use inside Reynolds. We use F11 or we call it by its chemical name.
Q. Every chemist who's taken basic chemistry knows TCFM is trichlorofluoromethane; don't they?
A. I'm not -- I'm not sure that that's true at all.
Q. Well at least you didn't know; did you, sir? And you didn't know what pH was, even though you testified about it yesterday; did you?
A. I don't think that's fair at all.
Q. Well --
A. I told you what pH was. I didn't know what the term "pH" stands for, and I doubt that most chemists do.
Q. You're supposed to be an expert in that field; aren't you, chemistry?
A. I am a chemist.
Q. Let's go back to this document. "...our present understanding is that few casing materials and no top dressings are added. The cigarettes are made to vary by tar and nicotine content, so it is probable that they contain the same residual amounts of processing agents that are found in commercial cigarettes.
"If ingredients are claimed to be the 'cause' of disease, then both the industry and its critics have tested the wrong product, and much of the prior research is flawed. Thus, both sides would be hard-pressed to rely on that research to support their respective positions on general causation." Do you see that?
A. I see where it says that.
Q. And this document was sometime after 1984; wasn't it, sir?
A. I don't know the date on this document.
Q. Well if you turn over two pages -- excuse me, over to the page that bears the Bates number at the bottom 8127.
A. Okay.
Q. Do you see a footnote there?
A. Yes.
Q. And there's a reference to 1984 down there at the bottom, third line from the bottom. See it?
A. I see the reference to 1984. I don't know whether that means this document is 1984 or not.
Q. Well it would have to be '84 or later, you'd agree with that; correct, sir?
A. I would think so.
Q. Now let's read that paragraph. "A corporate misconduct test premised upon ingredients would consist of claims of testing which was both belated and inadequate, failure to make adequate inquiry into the composition of flavors produced by outside flavor houses, and the failure to remove ingredients known or shown to be harmful. There are memoranda in the RJRT files" --

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What's RJRT?
A. R. J. Reynolds Tobacco Company.
Q. Okay. "There are memoranda in the R. J. Reynolds Tobacco Company files which reflect a desire by R&D personnel to test ingredients and which document the policies which the company has followed. A recent memo by a Lorillard employee (Alex Spears) to Dr. Hayes at RJRT suggests that in 1984 the Committee of Counsel thwarted the industry scientists' desires to assure the safety of the product by testing ingredients adequately." Do you see that?
*10 A. I see that, and it surprises me because that's not what I've seen at Reynolds, what this suggests.
Q. Who are the R&D folks whose desires were thwarted? Have you done any investigation into that?
A. I'm not aware of any thwarting. That's why I say I'm surprised by what's said in this document if we take it at face value. I don't know the circumstances behind this. Obviously, when I tried to read this document, there are large sections that are taken out, so I don't really know what it means. But I tell you, if we look at that sentence that you're pointing me to, it's -- it's inconsistent with what I've seen at Reynolds.
Q. Well have you known Mr. McDermott not to tell the truth?
A. I don't know the circumstances behind this. I don't expect Mr. McDermott not to tell the truth. Certainly not.
Q. Now --
A. But I don't understand what this is about because it's foreign to what I've seen at Reynolds.
Q. Of course we don't know who these R&D scientists are who really did want to test; do we? We don't have their names; do we, sir?
A. The only RJR person spoken to in this paragraph is Dr. Hayes.
Q. Now the Alex Spears reference, he was and is the CEO of Lorillard; isn't he?
A. Alex Spears is currently the CEO of Lorillard. In 1984 or after, I'm not sure exactly what his title --
I know he's a -- he's a chemist that used to work in the R&D department at Lorillard, and then he used to be in charge of the R&D department at Lorillard.
Q. So he was an individual who was in charge of R&D at Lorillard; correct?
A. For a period of time, yes.
Q. And this memorandum of Mr. McDermott's states that a recent memorandum by a Lorillard employee, Alex Spears, who you say was in R&D, to Dr. Hayes at RJRT suggests that in 1984 the Committee of Counsel thwarted the industry's scientists; correct?
A. That's what these words say. Again, I don't know the circumstances behind this. And as I said, this is really foreign to my experience at Reynolds.
Q. Do you know who the Committee of Counsel is?
A. Yes, I do.
Q. And who is the Committee of Counsel?
A. The Committee of Counsel is composed of lawyers from each of -- or the head lawyers from each of the major tobacco companies.
Q. And do they deal with the CTR?
A. Frankly, I don't really know what they do. I know they meet periodically. I'm not sure how often.
Q. Nobody's ever --
A. I don't --
Q. Nobody's ever told you what they do?
A. Not in specific terms, no.
Q. Well have they told you in general terms what they do?
A. Well no, I guess not that either.
Q. Pardon me?
A. Not that either.
Q. "Not that either."
So you don't know anything about what the Committee of Counsel does; is that right?
A. I think that's fair.
Q. Nobody has taken you into their confidence at RJR to tell you what the Committee of Counsel does; is that right?
A. Well I -- I don't think that's an accurate interpretation of it. I just simply don't know what the Committee of Counsel does.
*11 Q. And have you seen other documents in this case which show that the Committee of Counsel has thwarted scientific activities?

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A. I don't recall other documents that say that.
Q. Have you seen other documents which show that historically your company and others abdicated their responsibilities to the Committee of Counsel?
A. I don't recall seeing that in any of the other documents either. And frankly, that would surprise me as well, based on my experience at Reynolds.
Q. It would.
Can you turn to Exhibit 10165, which would be in volume one, sir.
A. 10465?
Q. '165. I'm sorry, doctor.
This is a document entitled "Scientific Research Liaison Committee." I'll represent to you that it has been identified as the handwritten notes of Mr. Judge, who was the CEO of Lorillard.
You've looked at this document; haven't you?
MR. WEBER: Your Honor, I'd object to any questioning on this -- (clearing throat) excuse me -- with respect to documents from another company given the ruling that was made earlier, and also under 602 for no personal knowledge.
THE COURT: You may answer the question.
Q. You've looked at this document; haven't you?
A. I can't recall seeing this document before.
Q. Now number one, "We have again 'abdicated' the scientific research directional management of the Industry to the "Lawyers" with virtually no involvement on the part of scientific or business management side of the business." Do you see that?
A. I see where it says that.
Q. Same type of thing we saw in the 1984 McDermott memo; correct?
MR. WEBER: Let me object to that as a mischaracterization, Your Honor.
THE COURT: No, he may answer that.
A. I would say it uses some of the same words. I think it's somewhat different, however. And again, you know, this is -- this is completely inconsistent with what I've seen at my company.
Q. Let's go down below here. Number two. "Lorillard's management is opposed to the total industry future being in the hands of the Committee of Counsel -- it's reminiscent of the late '60s when Ramm's group ran the TI" --
You know that's The Tobacco Institute; correct?
A. Right.
Q. -- "CTR" --
Council for Tobacco Research; correct?
A. Right.
Q. -- "and everything else involved with the Industry's public posture." Do you see that?
A. I see where it says that.
Q. And you do know that Mr. Ramm was RJR's general counsel; don't you, sir?
A. I know that RJR's general counsel for a time was a Mr. Ramm. I assume that's -- or -- assume that's the same one. I don't know.
Q. Now you've never seen either this document, 10165, or Mr. McDermott's memorandum, which is Exhibit 21504, until this case; is that right?
A. I've never seen either of these two documents. I've never seen this one until just now. I've never seen the other one that we looked at until this case.
Q. And you've been at Reynolds since 1977; was it?
*12 A. '77.
Q. Should the research and development and safety of the product be thwarted by lawyers?
A. Absolutely not. And again, it's my experience over 20 years that it's not. Our research and development department is not run by lawyers, it's not directed by lawyers, and what we need to do and want to do is not thwarted by lawyers. It does not happen.
Q. Where are the memos that are referred to in Mr. McDermott's memo?
A. I beg your pardon?
Q. Where are the memos that are referred to in Mr. McDermott's memo?
A. I don't know what -- what you mean.
Q. The recent memo by the Lorillard employee, the memoranda in the RJR files which reflect a desire by R&D personnel --
A. Well please -- please point me to where you're speaking from then.
Q. Exhibit 21504, page seven.

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A. Yeah, I got it in front of me.
Q. Right down at the bottom. You see it? It's right up on the overhead, too, if you can see it better there, sir.
A. Well my bifocals don't work at exactly that distance. Okay. So point me to where you are.
Q. I'm at that point.
A. Okay.
Q. Where are the memos that are referred to, the memoranda in the RJRT files and the recent memo by the Lorillard employee? Do you know where they are?
A. No, I don't.
Q. When you read this, did you ask for those memos?
A. When I read this document?
Q. Yes.
A. No.
Q. Did you have any curiosity about where they might be?
A. I have curiosity about this entire document.
Q. You do now.
A. Yes.
Q. Did you have it when you read the memo?
A. Yes.
Q. Did you ask anybody where are these memos, I want to see them?
A. No, I didn't.
Q. Did you call back to talk to your general counsel or anybody else and say where are those memos, I want to see them before I go on the witness stand?
A. I think you sent over about -- more than -- or close to 200 different documents. I haven't had time to go through all of those in that form of detail.
I was curious about this. I have not had time to pursue this.
Q. I didn't ask about the other documents. When you saw this --
This is alleging that research was thwarted by lawyers; isn't it?
A. I'm telling you I haven't had time to pursue this. I find this document interesting. I don't fully understand it in part because it surprises me, another reason is because there's large sections missing and I really don't understand the context of this entire thing. I am interested in it.
THE COURT: Counsel, do you want to step forward, please.
(Discussion off the record between Mr.
Weber and the witness.)
THE COURT: Counsel.
MR. CIRESI: Thank you, Your Honor.
BY MR. CIRESI:
Q. Now when you read this and were surprised, did you make any attempt to make any investigation to determine where these other memos were?
A. I haven't had time to. The answer is no.
*13 Q. Can you go back to the 1981 Surgeon General's report, sir, page 26. The second bullet point with regard to research recommendations states as follows: "Research should be done on the distribution, partitioning, and penetration of lower 'tar' and nicotine smoke in the lung, with consideration of potential changes in smoking patterns by those who smoke lower 'tar' and nicotine cigarettes. Cigarette smoking-machines currently in use and the techniques by which animals inhale cigarette smoke in research models may not be representative of the human situation because human smokers are able to take larger, more frequent, and higher velocity puffs. To conduct meaningful assays of cigarette yields and the biological activity of cigarette smoke, it must be determined how smokers actually smoke various types of commercial cigarettes. When this information is available, it will be possible to design cigarette" -- excuse me -- "smoking-machines that yield more accurate estimates of human risk." Do you see that?
A. I see that.
Q. Now that's the subject of what you were participating in in December of 1994 at the FTC; correct?
A. That was one of the charges of the NCI FTC conference, was to evaluate whether changes needed to be made to the FTC smoking methodology.
Q. And the FTC came out with recommendations; didn't it?
A. It came out with a number of recommendations.
Q. And the industry is fighting those recommendations; isn't it?
A. Absolutely not. We've been working very closely with the FTC to help the FTC decide how to move forward. My scientists have had numerous meetings with FTC staff over the

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last year, provided extensive data. The industry scientists from all the companies have conducted a large collaborative study, obtaining data, provided all that to the FTC in the attempt to help the FTC move forward with modifications to the FTC overall scheme of -- of tar and nicotine reporting. We have not been thwarting it. In fact we've been working with the FTC. And I resent the suggestion that we've -- that we've done otherwise.

Q. You're fighting their recommendations; are you not, sir?

A. Fighting whose recommendations?

Q. The FTC's recommendations.

A. Absolutely not.

Q. You're certain of that.

A. The FTC has suggested that there be not one method, the present FTC method, but rather there be two methods, one that delivers low yields, one that delivers high yields, and that that range be expressed in advertising so that the consumer can see the range of expected tar yields that might be obtained on human smoking. We've worked with the FTC to try to better define that range, and in fact suggest that the higher tar level estimate can in fact be calculated from the lower tar estimate. And we've provided that information to the FTC, that in fact -- and I've had a number of technical meetings with FTC staff where we provided all of our data.

Q. And you're criticizing and fighting the high and low end points; are you not, sir?

*14 A. You mean --

Is your question are we fighting having two values?

Q. Yes.

A. No, we're not.

Q. Are you aware of documents that have been filed before the Federal Trade Commission on behalf of R. J. Reynolds Tobacco Company?

A. I'm aware that a number of documents have been filed that make it clear that the -- that having two numbers isn't going to help give the consumer any more information than he already has. We've made that very clear. The FTC has decided it wants to do something anyway, and so we're working with the FTC to try to help.

Q. You fought the two number type of testing and wanted to stay with the one type of FTC test; didn't you?

A. "Fought" is not the correct word.

Q. Well --

A. We have made it clear -- excuse me. We've made it clear to the FTC that having two numbers is not any better than having one number from a smoking machine, because in neither case is it going to represent what smokers really get. We've made that very clear to the FTC. We've provided a bunch of information.

I wouldn't characterize this as fighting the FTC, because then when the FTC decides that's what they want anyway, we help them out.

Q. Well let me rephrase my question. You opposed the FTC's proposal; correct?

A. We opposed the approach of going to multiple machine- smoking methods because each of those is still a laboratory test that doesn't represent what any individual smoker gets. It doesn't help the smoker by providing additional information.

Q. Have you ever taken out any ad anywhere in this country and told smokers, "We don't know what you get with these low tar/low nicotine cigarettes, and the FTC test that we use to put the numbers in our advertisements does not predict that?" Have you ever done that?

A. I'm not aware of any case where R. J. Reynolds has done that. The FTC commissioners have, however.

Q. Now on your cigarette packs, low tar/low nicotine, on all the packs, is the number that doesn't predict what an individual might get put on?

A. FTC tar and nicotine numbers are placed in advertisements, not on the packs.

Q. Not on the package; correct? So that a smoker who goes and buys cigarette packs, he doesn't get that information, does he, even though it doesn't predict what he or she would get?

A. Tar and nicotine numbers are placed in all advertisements by agreement with the FTC. Tar and nicotine numbers are not placed on the packs, as you've made very plain, and I think that's absolutely right.

There are a few brands that are the very lowest, like one milligram and two milligram, that use that as -- as -- where the tar number is actually placed on the pack, and there have been a variety of those where that's happened. But typically the tar and nicotine numbers are not placed on the pack. What is on the pack is the category that that cigarette falls into, and the smoker clearly knows whether it's a full flavor,

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whether it's a lights, whether it's an ultralights, or whether it's a lowest. So four general categories, the smoker knows that. Those categories are based on the numbers. So it's an indirect way. But the exact numbers are on the advertisements.

*15 Q. So you sort of tell them indirectly what it might be for which it won't make any difference about how they smoke; is that what you're telling me?

A. I don't understand that question.

Q. Well the numbers don't tell an individual smoker what he or she will get; correct?

A. The numbers were never intended to represent what any individual smoker gets.

Q. And RJR, and for that matter none of these companies, to your knowledge, have ever stated that publicly to the consumer; have they?

A. I've already answered that, and my answer once again is I'm not aware of any case where R. J. Reynolds has said that to the public. The FTC commissioners have, however.

Q. Now where has RJR said we consider low tar to be six to 14 milligrams of tar? Where have they said that to the public or any information that the public gets?

A. Information to the consumer?

Q. Yes.

A. I'm not aware of a case where we've told the consumer what the ranges are, but they know that -- generally the ordering of the categories.

Q. And Reynolds is free to put any information it wants so long as it can back it up with data on its package -- packages; correct?

A. What do you mean, "any information?"

Q. It could put what the milligrams of tar are on its package; correct?

A. R. J. Reynolds could put the tar yield under FTC on its pack, and as I've already said, some of the very lowest products have advertised those as one milligram or two milligram on the pack.

Q. It could put that it doesn't -- that number doesn't mean that's what an individual smoker is getting; couldn't it?

A. Well there's no reason that it couldn't.

Q. It could put don't overcompensate on these cigarettes or they may be more harmful; couldn't it?

A. There's no reason R. J. Reynolds couldn't do that. I think --

Q. Now please go back to page 26, sir. The bullet point right in the middle, "Controlled studies...," do you see that?

A. Yes.

Q. "Controlled studies are needed to determine the role of nicotine as a primary reinforcer in cigarette smoking and to determine whether there are other chemicals in addition to nicotine that may contribute to or reinforce the smoking habit. By analyzing the mechanisms whereby nicotine reinforces smoking behavior, it may be able -- it may be possible to design more efficacious methods of smoking cessation." Do you see that?

A. I see that.

Q. Now as of 1981, are you aware of any company, including RJR, who turned over to the Surgeon General, the FDA, or any governmental agency, all of its internal information regarding smoking and addiction?

A. The word "addiction" is not in this paragraph --

Q. I understand that.

A. -- because this is before the Surgeon General --

Q. I know that.

A. -- of 1988.

Q. That's why I asked the question. Are you aware of any company that turned over their information regarding smoking and addiction to the FDA, to the Surgeon General, or any other governmental agency, in 1981?

*16 A. I'm aware that a number of companies have conducted research in the area of nicotine, nicotine pharmacology, the chemistry of nicotine, and a variety of other things. I know that some of that work has been published in the scientific literature.

To answer your specific question, I'm not aware of any company that has turned over all of its nicotine research.

Q. And sir, if you go to page 99 of this report, do you see there the title "Flavor Additives?"

A. Yes.

Q. If you go to the last paragraph under that section --

Did you read this, by the way, in 1981?

A. Yes.

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Q. The last paragraph, "The exact delineation of the chemical structure of additives, their pyrolytic products, the possible carcinogenic properties, and the quantities found in smoke of lower 'tar' cigarettes is urgently needed in order to assure the customer -- consumer that the filter, lower 'tar' and nicotine cigarette does not carry additional or new health risks." Do you see that?
A. I see that.
Q. And you were aware of that in 1981; weren't you, sir?
A. I read this in 1981.
Q. And when you read it, you were doing that in discharging your duties and responsibilities on behalf of the company; correct?
A. In 1981 I was doing basic research in the area of cigarette design and smoke formation.
Q. You were doing research on nicotine; weren't you?
A. I have done research in the area of nicotine.
Q. You were doing research on the delivery of nicotine; weren't you, sir?
A. I've done research on the effects of cigarette design on nicotine yield.
Q. You were doing research on the segmentation of the cigarette to determine how nicotine will be delivered to the smoker; weren't you?
A. I've done research on cigarette -- unique cigarette designs that alter the puff-by-puff delivery of tar and nicotine.
Q. And nicotine; correct, sir?
A. Tar and nicotine.
Q. In fact, your first patent, if one looked at the figures --
You know what figures are in a patent?
A. Of course I do.
Q. Okay. They are diagrams of the invention which show certain aspects of the invention or the operation of the invention; correct?
A. Generally.
Q. And every one of the figures in your first patent deals with nicotine and puffs; doesn't it?
A. There are figures that deal with nicotine as a function of puff number.
Q. Every single figure in the patent; correct?
A. I'd have to go back and look.
MR. CIRESI: May I approach, Your Honor?
MR. WEBER: Excuse me. Was this document designated?
MR. CIRESI: I'm just refreshing his recollection.
MR. WEBER: Your Honor, there's no refreshing-recollection exception to the designation rule in this case that's been applied thus far.
MR. CIRESI: Your Honor, I'm not going to put the patent in evidence.
THE COURT: Is this his patent?
MR. CIRESI: Yes.
THE COURT: Well he can look at his own patent, I guess.
*17 MR. CIRESI: He just said he'd have to look at it.
(Document handed to the witness.)
MR. WEBER: Is there an extra copy, counsel?
MR. CIRESI: That's all I have. Oh, wait a minute, we may have another one.
BY MR. CIRESI:
Q. Is that the '024 patent, doctor? I'm sorry.
A. Yes.
Q. Yeah.
(Document handed to Mr. Weber.)
Q. Do the figs. deal with nicotine and puffs, the figures?
A. The figures that include graphs deal with nicotine as a function of puff number.
Q. Every one; correct?
A. All of the graphs in this patent deal with nicotine delivery as a function of puff number.
Q. And can you direct your attention, sir, to Exhibit 12408. It's toward the end of volume one, sir.
THE COURT: Counsel, would you return that --
Are you finished with that?
MR. CIRESI: Yes, I am. May I approach, Your Honor?
THE COURT: Yes.
(Document handed to Mr. Ciresi.)

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MR. CIRESI: Thank you.
BY MR. CIRESI:
Q. That's a 1972 memorandum of Dr. Claude E. Teague, April 14th, 1972.
A. Yes, it is.
Q. Nine years before the Surgeon General's 1981 report?
A. That's right.
Q. It's confidential; correct?
A. It's marked RJR confidential.
Q. And that's a stamp that's used within the R&D department of RJR; correct, sir?
A. Sometimes. Sometimes not.
Q. Under what circumstances is it supposed to be used?
A. Well there are not clear guidelines at this point on the use of confidential stamps. I think most of us consider everything, all the internal documents, to be RJR sensitive and confidential, and -- and so all documents are maintained that way.
Q. Are they all stamped RJR confidential?
A. All documents produced in RJR R&D?
Q. Yes.
A. No, they're not all stamped.
Q. So there are varying orders of confidentiality within the department; correct?
A. That's exactly what I'm trying to tell you, is that there are no protocols for stamping documents in the R&D department at this time. I think a long time ago there used to be defined protocols, but in -- in R&D and for quite a number of years there are -- there are no protocols for what is a confidential document and what is not because we've assumed that all internal documents to RJR are company confidential.
Q. That's today's policy; correct?
A. I'm saying there is no policy. We're assuming that, and there is no policy regarding stamping of documents.
Q. Okay.
A. It's company property, however.
Q. So today every document is assumed to be confidential. Is that a fair statement?
A. I think that's fair, along with the statement that many documents are not stamped, but they're still assumed confidential.
Q. Right. But even today some documents are stamped confidential; aren't they?
A. That's true.
Q. Now this was a research planning memorandum on the nature of the tobacco business on the crucial role of nicotine therein; correct?
*18 A. That's what it says, that's correct.
Q. And you talked about the memo a little bit on direct; didn't you, sir?
A. Yes.
Q. And the first page, if we go to that, please.
A. Okay.
Q. And at the top it states --
And by the way, do you know what position Dr. Teague had at this time?
A. I can't be entirely certain in 1972.
Q. He achieved a high position in the research and development department; didn't he?
A. Relatively speaking. As I recall, maybe the highest position he -- he got to before he retired, he was director of administration and a number of other functions, but he was at the director level. Before that --
Q. The research and development department?
A. For the research and development department. And before that he was director of R&D planning.
Q. Director of R&D planning; is that what you said?
A. Before he became director of the administrative services, which is essentially taking care of the building and the operation of the R&D facility.
Q. Now in this memorandum on page one, Dr. Teague states, "In sense, the tobacco industry may be thought of as being a specialized, highly ritualized and stylized segment of the pharmaceutical industry. Tobacco products, uniquely, contain and deliver nicotine, a potent drug with a variety of physiological effects." Correct?
A. That's what it says.
Q. And he goes on to state, about a third of the way up in that first paragraph, "Thus a tobacco product" --
Do you see that?
A. Yes.

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Q. -- "is, in essence, a vehicle for delivery of nicotine, designed to deliver the nicotine in a generally acceptable and attractive form. Our Industry is then based upon design, manufacture and sale of attractive dosage forms of nicotine, and our Company's position in our Industry is determined by our ability to produce dosage forms of nicotine which have more overall value, tangible or intangible, to the consumer than those of our competitors." Correct?
A. That's what it says.
Q. Now you said you were a smoker on direct; correct?
A. Yes.
Q. How old were you when you started smoking?
A. About 27 or thereabouts.
Q. Twenty-seven.
Can you go on to page four.
Did you start when you started with the company?
A. No, I started before I joined the company. I was approximately 30 when I started with R. J. Reynolds.
Q. Okay. If you go on to page four, do you see that Dr. Teague is talking about learning more about nicotine absorption, action, elimination, enhancement and the like? Do you see that?
A. In a general sense.
Q. Now if we go to the last full paragraph, "Before -- Before proceeding too far in the direction of design of dosage forms for nicotine, it may be well to consider another aspect of our business; that is, the factors which induce a pre-smoker or non-smoker to become a habituated smoker. Paradoxically, the things which keep a confirmed smoker habituated and 'satisfied,' i.e., nicotine and secondary physical and manipulative gratifications, are unknown and/or largely unexplained to the smoker -- non-smoker. He does not start smoking to obtain undefined physiological gratifications or reliefs, and certainly does not start to smoke to satisfy a non-existent craving for nicotine." Do you see that?
*19 A. I see that.
Q. Now when you started smoking, did you like the taste?
A. Um --
Q. The very first cigarette.
A. Well it was a different taste certainly. I think I did like it. I think I did find that to be a pleasurable thing for me.
Q. First time you took a cigarette you thought it to be a pleasurable thing?
A. I think that's my recollection.
Q. It is.
A. Yeah.
Q. It didn't sort of taste a little foul to you?
A. That's -- that's a long time --
I'm just telling you the best I recall.
Q. Now Dr. Teague goes on to say, "Rather, he appears to start for purely psycological reasons -- to emulate a valued image, to conform, to experiment, to defy, to be daring, to have something to do with his hands, and the like." Do you see that?
A. I see that.
Q. Now when we're talking about emulating a valued image or conforming or experimenting or defying or to be daring, does that call to mind youth?
A. Those are -- I guess those are values, whether it's going to image, conforming, experimenting, defying, being daring, that span certainly across all age groups. I would say most people probably associate that with -- with younger people --
Q. Teen-agers.
A. -- in general.
Q. Teen-agers in general; correct?
A. Well you can't draw limits like that. Younger adults, twenties, 25, under 30. You know, you can break it down into different segments and say: Are under 30 people more daring? Well in general that's probably true, isn't it?
Q. All right. So you wouldn't say that those attributes which we've just read do not generally apply to teen-agers.
A. That's not what I said. What I said is I don't see how -- or what I meant to say, if I didn't, is I don't see how we can draw solid, hard lines of demarcation here. I think people's assumption of certain values or approaches to life may skew in one direction. But calling them teen-agers or 30 and under or whatever, I just don't see how one does that.

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Q. Now you said that Philip Morris sold a denicotinized cigarette; correct?
A. They sold a number of brand styles, somewhere in the neighborhood of maybe 18 different brand styles.
Q. And you said they didn't sell very well; is that right?
A. I think they failed in the marketplace.
Q. Now do you know what type of acceptance they found when they first came out?
A. You mean acceptance, or do you mean trials in the market?
Q. No, I mean acceptance. Do you know what percentage of the market they got when they first came out?
A. I think there were a number of trials on the new product. I'm not --
I don't believe that there was any significant share of market, however.
Q. Do you know if they got a percent or two percent of the market and then dropped off?
A. I'm saying I don't think they got a significant share of market.
Q. I didn't have ask "significant," I'm asking you now if they got a percent share of the market.
*20 A. No.
Q. You don't know.
A. No, they did not get a percent share of the market.
Q. Now can you go to page six. About five lines down do you see the part beginning "If, as proposed above...?"
A. Yes.
Q. "If, as proposed above, nicotine is the sine qua non of smoking, and if we meekly accept the allegations of our critics and move toward reduction or elimination of nicotine from our products, then we shall eventually liquidate our business." See that?
A. I see where it says that.
Q. Do you agree with that?
A. I don't agree with part of it, I agree with part of it. If nicotine is the reason for smoking -- if nicotine is the reason for smoking and you eliminate nicotine, then you lose business. If nicotine is the reason for smoking and you reduce nicotine, history has shown that as -- through tar and nicotine reduction, we can still main consumer -- maintain consumer acceptance. If you eliminate nicotine altogether, history has also shown that those products are not acceptable. So nicotine is important for smoking at some level because we know from experience, going to none, those products are not acceptable. But we've also shown that consumer acceptance with nicotine levels that are quite low, much lower than they used to be, those products are still acceptable.
Q. Well if you eliminate nicotine --
As you said, almost all of it can be eliminated; correct?
A. Philip Morris used a denic process to eliminate virtually all the nicotine.
Q. So technologically that can be done; correct?
A. Technologically one can make a dramatic reduction in nicotine.
Q. And if that were done, you'd liquidate the business; correct?
A. If the only products sold in the market had no nicotine, I think those products would be unacceptable, and I think -- I think that would -- I think sales would decline.
Q. And no matter how flavorful that cigarette were and how people liked to roll it in their hands and roll the smoke in the back of their neck -- or throat, excuse me, the business would be liquidated without the nicotine; correct?
A. I think I've already answered your question.
Q. And the answer is yes; isn't it?
A. I think a cigarette that has absolutely no nicotine is not acceptable to consumers.
Q. And so the question is how low can you go and still keep people hooked; isn't it, sir?
A. And still keep people --
Q. Hooked.
MR. WEBER: Object to the argumentative nature of that, Your Honor.
THE COURT: You may answer that.
A. Well I really don't understand what you mean by "hooked." I'll tell you that what we've done is we've reduced tar and nicotine levels dramatically over the years, as I've already explained, I think, time and time again, and the range of products offered to consumers today go down -- go from -- from, oh, say in the neighborhood of 1.3 or 1.4 milligrams, maximum, all the way down to less than .1, which is so low it's very difficult to measure.

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*21 Q. What --
A. And -- and --
Q. Sorry.
A. -- that range has -- those ranges are -- of products are in the market, and people buy them. So --
Q. So you're keeping them in the market with those range of products; correct?
A. Keeping what in the market?
Q. Keeping those people in the market with that range of products; correct?
A. I work for a cigarette manufacturer --
Q. I know you do, sir.
A. -- and my -- and my company does not keep somebody in the market. They can quit if they want to.
Q. I see. Now the .1 nicotine level, what share of the market does that have?
A. It's a very small share of the market. A few percent.
Q. What percent?
A. It's a few percent.
Q. Three?
A. I would say it's less than -- less than about --
It's certainly less than two percent and maybe less than one and a half percent.
Q. Less than one percent; isn't it?
A. I haven't seen the latest numbers on it.
Q. Now RJR looked over the years how low could it go and still keep the physiological kick; didn't it?
A. I think there's some language in Dr. Teague's memo to that effect.
Q. Well let's take a look at Exhibit 12777. This is not Dr. Teague's memo, this is Mr. Laurene's memo; correct?
A. This one is, yes.
Q. And it's to Dr. Senkus; correct?
A. Yes.
Q. And who is Dr. Senkus?
A. Dr. Senkus is an RJR employee, used to be an RJR employee working in the research and development department.
Q. And what position did he obtain?
A. He was head of the research department.
Q. Head of it.
A. Yes.
Q. And this is dated May 24th, 1971; correct?
A. That's correct.
Q. And he's talking about possible IBT, which is Industrial BioTechnical projects; correct?
A. That's correct. IBT was a contract laboratory.
Q. And what is --
The subject matter being discussed here is "As a result of discussions with Dr. Teague and with Section heads, the following are suggested as possible IBT undertakings;" correct?
A. It says that these are some possible IBT undertakings.
Q. And one of them, if you look at number four, the "Habituating level of nicotine (How low can we go?)" Correct?
A. That's what it says.
Q. And in the REST document that we saw which goes all the way up to 1991, it's stated there that RJR was basically in the nicotine business; didn't it?
A. I've seen that, something similar to that in the -- in the REST document.
Q. Take a look at Exhibit 13165. It's in volume two, sir.
THE COURT: Counsel, counsel, I think we should take a short break.
MR. CIRESI: All right. Very good, Your Honor.
THE CLERK: Court stands in recess.
(Recess taken.)
THE CLERK: All rise. Court is again in session.
(Jury enters the courtroom.)
THE CLERK: Please be seated.
THE COURT: Counsel.
MR. CIRESI: Thank you, Your Honor.
BY MR. CIRESI:

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Q. Doctor, do you have Exhibit 13165, the REST document?
*22 A. Yes.
Q. Can you go to page 9584. That's the Bates number, sir, the last four numbers.
A. Okay.
Q. The title on this page is "Controlled Nicotine Process;" correct?
A. That's correct. That's the title.
Q. And do you see there the "Basis?"
A. Yes.
Q. "We are basically in the nicotine business." Correct?
A. That's what it says.
Q. And this is a 1991 document; correct?
A. May 3rd, 1991.
Q. And that's approximately -- almost 20 years after Dr. Teague's document of April 14th, nineteen ninety -- '72; right?
A. That's close.
Q. Now you agree that nicotine is a pharmacologically active substance; don't you?
A. I believe that nicotine exerts a mild pharmacology.
Q. It's a pharmacologically active substance; correct, sir?
A. I believe that it -- it has a mild pharmacological action on the human body.
Q. On the human body.
A. Yes.
Q. So that it affects the function of the human body; correct?
A. I think nicotine exerts a mild pharmacology, a lot in the same way that many other compounds do like caffeine or theobromine or a number of things.
Q. Doctor, I'm not asking you about caffeine, theobromine or any number of other things. My question was: So it affects the function of the human body; correct?
A. My superficial understanding is that something that has a mild pharmacology affects the body.
Q. You only have a superficial understanding of nicotine?
A. I'm not a biologist.
Q. I didn't ask if you were a biologist. Do you only have a superficial understanding of nicotine?
A. Of nicotine pharmacology. I don't certainly understand nicotine pharmacology, I don't understand biology.
Q. Then you don't know what --
A. I'm not an expert in biology.
Q. Then you don't know if it's a potent poison; do you?
A. A potent poison?
Q. Yes.
A. Nicotine at -- nicotine exposure at high levels is certainly toxic, if that's what you mean.
Q. Can kill; correct?
A. At certain high-level exposures, sure.
Q. What level of exposure? How many milligrams can kill you?
A. I really don't know.
Q. Less than 30?
A. I really don't know. I'd have to go back to the Materials Safety Data Sheet.
Q. So you simply don't know how mild or potent nicotine actually is; do you?
A. In terms of toxicity, I know that -- that nicotine exposure is toxic at certain levels. I don't know, as we sit here today, what that threshold level is.
Q. Now you hold four patents; is it?
A. Three.
Q. Three. They all deal with nicotine?
A. They all deal with the same invention, which is described roughly in the patent that we looked at.
Q. So the '024 patent basically sets forth the basic underlying invention, and the others are extensions or modifications of that patent.
A. No. I think they're all interrelated. I wouldn't say the first one necessarily sets out the whole thing. They're -- they're all interrelated, speak to the same thing, which is changing the design of cigarettes to change the puff-by-puff tar and nicotine delivery profile.
*23 Q. They all --
A. The yield profile.

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Q. They all deal with nicotine; correct?
A. They all deal with nicotine and with tar changes, too.
Q. Did you do any studying on nicotine before you embarked upon whatever research you did do to file your application in front of the United States Patent and Trademark Office?
A. What kind of study of nicotine? That's a broad area.
Q. Its pharmacological effects.
A. I'm not a biologist. I didn't do any studies myself of the pharmacology of nicotine.
Q. All right. So --
A. We had scientists at Reynolds who have studied nicotine pharmacology.
Q. So you have no first-hand knowledge based upon your scientific investigation into the pharmacological effects of nicotine; do you?
A. I'm not an expert in the area. I don't know details about the pharmacology of nicotine.
Q. And therefore you have no sound scientific basis to state how potent or mild the pharmacological effect of nicotine is; do you?
A. We have excellent scientists in the area at Reynolds. They have described a number of things to me. They've characterized it as a mild pharmacology. I trust our scientists.
Q. I didn't ask what somebody else may have said because they're not here for me to cross-examine. I asked you --
A. Could you --
Q. -- if you knew, --
A. You were asking --
Q. -- if you performed an investigation yourself.
A. You were trying to explore what I understand about the pharmacology of nicotine. What I understand is what I've -- what I've learned in discussions with experts in the field that work for R. J. Reynolds.
Q. Now based upon your own education and your own research, you do not know how potent nicotine is or is not; do you?
A. I'm a chemist, I'm not a biologist. Going strictly by your question, I can't, based on my education or my experience, speak to the degree of pharmacology of nicotine in the human body.
Q. And you don't know the effect of free nicotine in the body based upon your own education or experience; do you?
A. I don't think that's exactly accurate. I have some experience in understanding cigarette design and understanding smoker reaction to cigarettes, smoker acceptance of cigarettes. If you're talking about the physiology of free nicotine, no, I'm not an expert in that area.
Q. You don't know anything about the physiology of free nicotine based upon any experiments or tests that you yourself have conducted; do you?
A. No, I've never conducted experiments in that area.
Q. Can you direct your attention, please, to Exhibit 12270. This is an RJR memorandum dated September 21, 1976 from John L. McKenzie to Mr. A. P. Ritchy; correct?
A. It's from McKenzie to Ritchy on September 21st, 1976.
Q. And do you know Mr. McKenzie?
A. I know John, yes.
Q. What's his position at the company?
A. Well let's see, the last time I saw John, he was transferring to one of our international units. He's worked in operations or manufacturing for -- for a good while. He's not in -- he's not presently in the research and development department.
*24 Q. Pardon me?
A. He's not presently in the research and development department.
Q. Okay. But he was in the research and development department in 1976; correct? If you know.
A. Best of my recollection, I think that's correct.
Q. And you learned that after you came on board in 1977?
A. That --
Q. He was in the research department in 1976.
A. I think, to the best of my recollection, John McKenzie had been in research and development for some time before I arrived.
Q. And who was Mr. Ritchy?

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A. I don't know Mr. Ritchy.
Q. Can you direct your attention, sir, to page two of that document.
A. Sure.
Q. Do you see the notation -- or the paragraph entitled "Nicotine?"
A. Yes.
Q. And it states that "The psychopharmacological agent in tobacco, which is one of the key factors in satisfaction, is nicotine;" correct?
A. That's what it says.
Q. And then it talks about a window where that nicotine range should be within cigarettes; correct?
A. I don't see the word "window" used.
Q. Well they have a range from .2 to 1.8 milligrams per cigarette. Do you see that?
A. It says, "Typical nicotine in smoke values for cigarettes range from .2 milligrams to 1.8 milligrams per cigarette." My take on that sentence is he's referring to the typical range in the marketplace.
Q. Well right above that he's talking about whether the nicotine is too low, or if it gets too high, and what would happen in either event; correct, sir?
A. I think that's a fair characterization. But the last sentence, those numbers that you referred to I take it from this memo to represent those levels that are -- that were in the market at that time.
Q. And he's talking about, though, in that paragraph, going too low or going too high and what the implications of that would be; correct?
A. That in a general sense is what he's speaking to.
Q. And in the last paragraph he's talking about pH; correct?
A. Yes.
Q. And about the immediacy of the nicotine impact; correct?
A. Yes.
Q. And that as the pH increases, the nicotine will change its chemical form so it is more rapidly absorbed by the body and more quickly gives a kick to the smoker; correct?
A. That's what he says.
Q. But if the pH becomes too high, the smoke cannot be inhaled as is the case with cigar smoke; correct?
A. That's what's said here.
Q. And if you go on to the next page, he talks about the cigarette being a complex chemical reaction chamber for the generation of an aerosol containing flavoring materials and nicotine; correct?
A. That's what it says.
Q. And on the preceding page he talks about the taste coming from the tar; correct?
A. Where are you talking about?
Q. Right next to the word "Tar" on the previous page.
A. Okay.
Q. Let me read it for you.
A. I'm sorry, your question was --
Q. Let me read it for you. "The designation tar is a misnomer for the complicated but discrete mixture of solid and liquid materials in smoke aerosol excluding water, which is omitted, and nicotine, which is reported separately. The smoke tar contains the majority of flavorant materials responsible for the taste of cigarette smoke. A reduction in tar leads perforce to a reduction in taste perception. Application of more top flavor materials and selection of stronger flavored tobaccos are typical procedures for amelioration of the loss associated with tar reduction." Do you see that?
*25 A. I see that sentence.
Q. And you agree with that; don't you, sir?
A. I think I agree with some of it and not others.
Q. You do agree that the tar contains a majority of flavorant materials; don't you?
A. I think many flavoring materials or flavorful materials are present in the tar. We already talked about pyrazines and other highly flavorful compounds. There's no question about that. I think the gas phase also contains constituents. Some of the constituents of the gas phase are important to the overall taste perception as well.
Q. But as a chemist, you're not equipped to say nicotine is an important compound for the taste aspects or characteristics; correct?
A. Based on my experience as a product developer, I -- I firmly believe that nicotine is important to the overall taste perception. Nicotine is irritating; there's a sensory response in the oral cavity and the upper respiratory tract. No question about it. It is important to the overall sensory perception of that product.

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Q. Talking about taste.
A. And your question is?
Q. Well let me refer you back to the FTC December 4th, 1994 conference you were at where Dr. Freeman asked you this question.
A. Can you refer me to a page, please?
Q. Page 191.
MR. WEBER: Can we have an exhibit number?
MR. CIRESI: 4994.
MR. WEBER: Thank you.
BY MR. CIRESI:
Q. You'll recall we went over this this morning, sir. It's page 191.
A. Okay, I'm there.
Q. Do you have it?
A. Yes.
Q. "DR. FREEMAN: Dr. Townsend, I just want to ask one question, and it may be a little naive. Several times you have mentioned the value of tar in cigarettes because you say it is associated with taste. Even conceding that although it seems to be a thing that is killing people.
"But what about nicotine? What is the value of nicotine and cigarettes, and why could it not be dramatically reduced?
"DR. TOWNSEND: Nicotine, of course, is part of the smoking sensation. It does provide a sensation to the smoker. I think one of our competitors found that tobacco that had been treated to remove all the nicotine was not successful in the marketplace.
"More than that, just as I cannot look into the components of tar and say, this is a very important, tasteful, and flavorful compound. You know, I am not equipped as a chemist to say nicotine is an important compound for this aspect of taste characteristics."
Now that's what you said there; correct?
A. That's -- that's what's taken here, and it's, frankly, excerpted from a series of discussions and background. I think it's clear to me that it's -- it's absolutely right that I cannot go into tar and say this is the flavorful compound that's important to smokers. I think there's a number of compounds in tar that influence taste perception, and some smokers prefer different taste than others.
To the second paragraph about nicotine, I think nicotine is important to the sensory characteristics of -- of smoker acceptance of a product. I've said that in the first paragraph that you read. If you're -- and what I was referring to here is, as a chemist, I can't specifically talk about the mechanism of taste or flavor of nicotine and its relationship or its interaction in the body.
*26 Q. Well an alkaloid, you know it's got a rotten taste; don't you?
A. No, I don't know that at all.
Q. You don't.
Can you turn to Exhibit 12673.
A. Okay.
Q. This is an RJR memo dated November 9th, 1976 from W. M. Henley to Dr. D. H. Piehl; correct?
A. Yes.
Q. And it deals with nicotine; does it not?
A. This is a discussion group about nicotine, about nicotine research.
Q. And it talks about the physiological action of nicotine as affecting the cholinoceptive receptors of the neural junction in the brain?
A. There's a section here that's essentially a literature survey on physiological action of nicotine by Bob Moates, who was a chemist.
Q. At --
A. R. J. Reynolds.
Q. -- RJR.
And then if you go over to page three, talks about taste perception of nicotine.
A. There's a section that was part of the discussion on the taste of nicotine by Chuck Rix, also a chemist at R. J. Reynolds.
Q. And the taste perception, it says "Some Taste (foul, rotten rubber)."
A. Yeah, I see that, and I've seen it before.
Q. Do you disagree with that, too?
A. Well I don't know that that's in fact the case. I know that nicotine exerts certainly a sensory effect, as I've already indicated, like carbonation in Coke. I don't know particularly that it has a taste, and, if it has -- and if it does, whether

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that taste is like rotten rubber.
Q. All right.
A. I don't know.
Q. So you have no idea whether it has a taste or not.
A. This is the only reference I've seen to internal research on the taste of nicotine.
Q. So in all your years at Reynolds, and based on all your years, you don't know if it has taste or not; correct?
A. A taste in the classical sense that -- that it imparts a particular, specific taste. It certainly is important in the overall taste perception or sensory perception of the cigarette, as I've indicated several times.
Q. Well --
A. Does it have a specific taste itself? I don't know. I've never done any experiments. I know that this is one reference to an experiment where this was a conclusion. I don't know whether it's accurate or not.
Q. Well do RJR people generally put down inaccurate stuff in their minutes?
A. I think our scientists are quite good. I think there are some -- some experiments that may be conducted incorrectly from time to time and some incorrect conclusions are drawn from time to time.
Q. Now doctor, back when you were at the FTC conference in 1994 --
A. Are we turning back to that document?
Q. Well you can if you'd like to, if you need it. I'm just talking about the smoking cessation of nicotine.
A. What page are you on?
Q. Do you recall that you talked about that?
A. What page are you on?
Q. 191, Exhibit 4994.
A. Okay, I'm there.
Q. And you were talking there about nicotine is part of the smoking sensation; correct?
A. I said, "Nicotine, of course, is part of the smoking sensation."
*27 Q. So it affects, as you said a little bit earlier, bodily functions by providing a sensation; correct?
A. I think there's a sensation in the oral cavity and upper respiratory tract, a physical sensation. No question about it. And there's also a mild pharmacology associated with nicotine. No question about it.
Q. That affects the brain; correct?
A. The psychopharmacological action of nicotine affects the brain.
Q. Affects the brain.
Now you said that if you completely eliminated nicotine, you probably wouldn't be selling cigarettes; correct?
A. I think what I said was that cigarettes with extremely low level or no nicotine are not consumer acceptable.
Q. So that RJR deliberately gets its nicotine up to where this sensation will take place; correct?
A. No, that's not true at all. We don't deliberately get our nicotine up, because tobacco inherently contains nicotine.
Q. Well you take it out and then put it back; correct?
A. No. I don't understand what you're saying. We don't take nicotine out and then put it back. I don't understand that at all.
Q. On the reconstituted paper, do you take the nicotine out?
A. That's a process where we take the water extracts, the water-soluble materials out, we hold it to the side while we make a paper sheet, then we reapply it.
Q. What's the lowest nicotine level cigarette you have?
A. Less than -- less than .1 and in the range of .05 milligrams per cigarette.
Q. .05 milligrams. So you are able to control nicotine down to .05 milligrams per cigarette; correct?
A. I think that's a complete misinterpretation of -- of -- of what we -- what I've said we do in designing cigarettes for very low tar or for low tar. We use filtration, high efficiency -- high efficiency filters, we use air dilution, we use expanded tobacco, reconstituted tobacco, and a number of techniques to get these very low levels.
We make cigarettes with tobacco that contains nicotine, that nicotine is inherent or endogenous in the tobacco, and through the construction techniques we're able to get very low tar and nicotine levels.

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Q. You control the nicotine down to a very low level through your design parameters. That's what you just said; correct?
A. Different set of words. I'm just trying to make it clear what we do.
Q. Yes. You control nicotine down to a very low level pursuant to your design parameters; correct?
A. We design cigarettes to achieve extremely low tar and nicotine levels.
Q. Now you can also have design parameters so that the nicotine level is higher; correct?
A. Higher than what?
Q. Than .05 milligrams per cigarette.
A. We can, through cigarette design techniques and various combinations of cigarette designs, make cigarettes that have higher tar and nicotine, and in fact that's what we offer in the market, is a range of products from higher levels of tar and nicotine all the way down to extremely low levels of tar and nicotine.
*28 Q. And each one is a deliberate design choice by RJR to put that type of cigarette into the market with those design characteristics; correct?
A. I think it is a design choice to -- to design a product to a specific design goal for different -- for a certain tar level, and in particular we -- we develop and manufacture and sell products in a range of tar and nicotine levels.
Q. And you know when you're doing that that you are affecting the body of the smoker with regard to the nicotine level in differing ways, depending upon the level of nicotine in the cigarette; correct?
A. Well again let me make it clear, nicotine exerts a mild pharmacology. There's no question about it. Nicotine is present in cigarette smoke. We have manufactured cigarettes over a wide range of tar and nicotine yields for consumers to choose among.
Q. And in doing that, you know there will be a different affect at .05 as opposed to five milligrams or six milligrams of nicotine; correct?
A. Let me -- let me see if I understand. Are you asking me at a higher nicotine level cigarette, will there be a different physiological effect?
Q. Yes.
A. I think -- and again I'm not an expert in this area, and you understand that very well, but I think my superficial response to that would be that at a higher nicotine level, there would probably be more of a physiological effect.
Q. And that is as a result of these conscious design choices that you have made; correct?
A. Absolutely not. We've designed cigarettes that -- that deliver tar and nicotine and provide a range of products, we put them in the market, and consumers choose them or reject them.
Q. And sir, you have put these various products in the market knowing that they have different levels of nicotine and can have different effects, you just said; isn't that right?
A. We put products with different levels of tar and nicotine in the marketplace, and consumers choose the products they want to smoke.
Q. And --
A. Some choose low -- the very low tar products, some choose the higher tar products, --
Q. And you --
A. -- and many choose those right in the middle.
Q. And you have deliberately put in the market those differing levels of nicotine; correct?
A. We have intentionally put different cigarettes in the market to provide the consumer a broad range of choices of tar and nicotine.
Q. And as you -- and as you just said, you know that those varying levels, based on this intentionally putting the cigarettes into the market, can produce different sensations in smokers based on the nicotine level; correct?
A. I'm telling you that was my opinion, not being a biologist, that I would expect that different levels of nicotine would have different levels of effect.
Q. So that your manufacturing and design parameters are intended to affect bodily functions; aren't they, sir?
A. I think you're making this a lot more complicated than it turns out that it is, because we develop cigarettes that -- with different ranges -- with different tar and nicotine levels, we place them in the market, and if smokers buy them, they buy them; if they don't buy them, those products don't stay in the market. Now what we've done over the years is in fact bring that range of products down, and consumers have -- have

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followed that -- that tar and nicotine reduction over the years.
*29 Q. So that your manufacturing and design parameters are intended to affect bodily functions; correct?
A. No, I don't agree with that at all.
Q. Well sir you just said that the higher the nicotine, the more impact it would have.
A. I'm speculating that -- and it just seems common sense to me that if there's a -- a mild pharmacology to nicotine, the more there is, possibly the more effect there should be.
Q. And that's --
A. That seems common sense to me.
Q. All right. And that's the way you design your product; correct?
A. I guess I'm missing your point "and that's the way you design your product." Because we design products to give a different range of tars -- I mean a broad range of tar and nicotine levels. The nicotine pretty much goes along with the tar. As we reduce tar, the nicotine comes along with it. I -- I guess I just don't understand your question.
Q. There's nothing really magical about the question. I mean you've said you've designed cigarettes differently; correct?
A. We design cigarettes differently to achieve different tar/nicotine levels, and we place those in the market.
Q. All right.
A. We intentionally design cigarettes differently --
Q. Right.
A. -- to achieve that range of tar and nicotine delivery.
Q. And that intentional design decision by you, based upon your knowledge of nicotine, will have differing effects on bodily functions; correct?
A. If a smoker chooses a higher tar product which also has a higher nicotine product, I would expect more of an effect than if they chose a cigarette that had extremely low tar levels and extremely low nicotine levels.
Q. And that's what a drug is; isn't it, sir?
A. I beg your pardon?
Q. That's what a drug is.
A. I don't understand what you mean.
Q. Drugs have different dosages; don't they?
A. I don't understand that.
Q. You don't know that you can get different doses of drugs? You don't know that?
A. Be more explicit, please.
Q. Well have you ever obtained a prescription in your life?
A. Well of course.
Q. And are there different dosages of prescriptions of the same drug?
A. One can get prescriptions or drugs in different doses.
Q. And the different doses will have a different effect on bodily functions; correct?
A. Well I don't know "different effect" is the right word, but certainly more of an effect or less of an effect, I would think.
Q. And sir, since 1994, that's why the FDA is seeking to regulate cigarettes as a drug; isn't that right?
MR. WEBER: Objection, Your Honor, he doesn't know why the FDA is doing what it does, and also it's argumentative.
THE COURT: Well it's not an argumentative question. If he knows, he may answer.
A. I'm sorry, would you ask me the question again, please?
Q. Sure. And sir, since 1994, that's why the FDA is seeking to regulate cigarettes as a drug; correct?
A. I don't know that.
*30 Q. Just don't know.
A. No.
Q. Can you direct your attention to Exhibit 12751. This is an RJR document from Donald L. Roberts dated October 13th, 1983. Do you know Mr. Roberts?
A. Yeah, I know Dr. Don Roberts. He's a chemist that worked for R. J. Reynolds.
Q. How long did he work for R. J. Reynolds?
A. I would say probably between 25 and 30 years before he retired.
Q. And he worked in the research and development department; correct?
A. Yes.
Q. Do you know what his duties were?

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A. Well as a chemist he had a variety of duties. He did some of the early smoke composition work. He did some flavor synthesis in the early days. In this time he -- at this point in time he was doing some exploratory cigarette design work, and actually he was sort of doing pretty much as this memo suggests here, brainstorming. That was -- he did that for a short period of time, just trying to come up with new ideas.
MR. CIRESI: We'd offer Exhibit 12751.
MR. WEBER: No objection, Your Honor.
THE COURT: Court will receive 12751.
BY MR. CIRESI:
Q. Now sir, the date again is October 13th, 1983; correct?
A. It's October 13th, 1983.
Q. Okay. And there are differing sections of this memorandum; correct, dealing with smoking and personality, physiological aspects to smoking, unadressed motivations for smoking. Do you see all that?
A. Yes.
Q. Can you turn to the third page of the memorandum. Has the Bates numbers 4066.
A. Okay.
Q. And you see the second bullet point there?
A. Yes.
Q. Dr. Roberts states there that "The cigarette's taste is a relatively unimportant benefit of smoking. Its taste is primarily a delivery vehicle for the benefits delivered by smoking, however, an acceptable taste is critical to success." Do you agree with that?
A. No, I don't agree with that. And Dr. Roberts in my estimation spent a lot of his career working on flavors and cigarette flavors. I would be surprised if Dr. Roberts agrees with that.
Q. Well he wrote this; didn't he?
A. Well I saw this the other night as -- because you designated it for my cross-examination. That's the first time I had seen it. In going through it, it hits me, although I went through it fairly quickly, it hits me as exactly what he said, a brainstorming session for developing possible new businesses.
Q. I just asked you whether or not he wrote that in his memo. Did he write that?
A. I would have to assume so. His name is on the top of the memo.
Q. Do you know him to be an honest man who tries to convey his honest beliefs when he's writing to flavor and biobehavior divisions within the company?
A. I know him to be an honest man. I know him to be a good organic chemist. I'm telling you I'm surprised to see that in his memo. I would be very surprised if he believes that. That's all I'm saying.
Q. Well does he say in here I really don't believe this, I'm just putting this in here?
*31 A. My quick read of this memo the other night is that there are a lot of assumptions, there are a lot of -- you know, Dr. Roberts was exploring possible new business areas in his brainstorming activity here. I don't know what he meant. I really don't.
Q. That wasn't my question. Did he put in the memo that he doesn't believe these things, he's just throwing them out as ideas?
A. No, he didn't. But I'm telling you based on my personal knowledge of -- of Dr. Roberts, I'm surprised, that's all. That's all I'm saying.
Q. Well you were surprised at other memos here, weren't you, today?
A. Yes.
Q. Let's go to the next page. "What a cigarette is.
"The functions a cigarette serves are many fold involving social, psycological and physiological. A short definition is that a cigarette supplies nicotine to the consumer in a palpable and convenient form." Do you see that?
A. I see that.
Q. He wrote it; correct?
A. Well again I would have to assume so, his name is on the front page.
Q. Okay. Do you agree --
A. I don't think --
Q. -- with that? Do you agree with that statement, sir?
A. "A short definition is that a cigarette supplies nicotine to the consumer in a palatable and convenient form."
I think a cigarette and cigarette smoking is far more complicated than what this suggests.

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Q. So you disagree with the statement; is that what you're saying?
A. I'm saying I think the -- the real picture is more complicated than that and cigarette smoking involves more than just nicotine delivery.
Q. Do you disagree, then, with what Dr. Roberts said?
A. I disagree that a short definition of what a cigarette is is as he stated it here.
Q. Now Dr. Roberts was with the company for over 30 years; correct?
A. I'd estimate it somewhere between 25 and 30. I don't know exactly.
Q. Longer than you have been with the company; correct?
A. Certainly.
Q. And he was a chemist; correct?
A. That's right.
Q. Like you are a chemist; correct?
A. A different --
He was an organic synthetic chemist.
Q. And he did work on nicotine while he was there; didn't he?
A. I've already said that most of his work there was in the area of flavors.
Q. He worked --
A. I don't -- I don't recall him doing nicotine research.
Q. Well you don't deny that he did nicotine research; do you?
A. I said I don't recall him doing nicotine research. My -- my recollection of Dr. Roberts over many years was that he did flavor research.
Q. You don't know what nicotine research he did; fair enough?
A. I don't know whether he did it or not.
Q. Now you mentioned Dr. Russell yesterday. Do you recall that?
A. Yes.
Q. When you were talking about the scientific community calling for low tar/low nicotine cigarettes, do you remember that?
A. With reference to Dr. Russell, I was referring to low tar/medium nicotine cigarettes.
*32 Q. You mentioned Dr. Russell, then you mentioned Dr. Gori; correct?
A. I mentioned Dr. Gori a number of times.
Q. And in one of the Surgeon General's reports you cited to Dr. Russell; didn't you?
A. Yes.
Q. And that was the 1981 Surgeon General's report; isn't it?
A. Right.
Q. And you implied that Dr. Russell was calling for commercial cigarettes with low tar and low nicotine; didn't you?
A. Low tar and low nicotine?
Q. Yes.
A. Dr. Russell, since the early '70 -- '70s, in fact, has been calling for low tar and medium nicotine primarily.
Q. Sir, in the Surgeon General's report you implied that that was what was being called for; correct?
A. Okay. Show me the article, please, and we'll read it.
Q. Do you remember that Mr. Weber directed you in the 1981 Surgeon General's report, which is Exhibit 3838, to page 185?
A. You said the 1981 one?Q. Biological Research Institute in Cambridge?
A. Yes.
Q. Roscoe Johnson Laboratory in Bar Harbor?
A. Right.
Q. The Industrial Technical Committee of TIRC?
A. That's right, yes.
Q. The National Cancer Institute in Bethesda, Maryland?
A. Right.
Q. Johns Hopkins University -- Hospital in Baltimore?
A. Right.
Q. New York University?
A. Right.
Q. And then the TIRC again, both Dr. Little and Dr. Hockett. Have you heard of them?
A. I've heard the names.
Q. And the Sloan-Kettering Institute in New York?
A. Yes.
Q. You've heard of that?

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A. Yes.
Q. It's a renowned cancer institute?
A. They do cancer research there.
Q. The TIRC in New York, the Scientific Advisory Board; correct?
A. That's what it says.
Q. And can you turn your attention to page two of this document. Do you see it's reported there that these individuals from England learned from the people they visited that "With one exception (H.S.N. Greene)" of Yale "the individuals whom we met believed that smoking causes lung cancer if by 'causation' we mean any chain of events which leads finally to lung cancer and which involves smoking as an indispensable link." Do you see that?
A. I see that.
Q. And sir, can you go over to page four, and do you see down there there's a heading "RESULTS OF SCREENING TESTS ON SMOKE FRACTIONS?"
A. Which paragraph?
Q. The -- right toward the end, there's a heading "RESULTS OF SCIENTIFIC SCREENING ON" --
A. Yes.
Q. -- "SMOKE FRACTIONS." Do you see that?
A. Yes.
Q. And do you see that the scientists state "One of the objectives -- main objectives of the visit was to discover whether there were any experimental grounds for believing that cigarette smoke condensate contains only one principal carcinogen which is quantitatively responsible for a large portion of the biological activity as measured by animal tests (a 'super carcinogen' in Wright's terminology)?" Do you see that?
A. I see that.
Q. And if you can go to page nine of this exhibit --
Actually go to page eight first, sir. And do you see the conclusions start there?
A. Yes.
Q. The first conclusion says, "Although there remains some doubt as to the proportion of the total lung cancer mortality which can fairly be attributed to smoking, scientific opinion in the U.S.A. does not now seriously doubt that the statistical correlation is real and reflects a cause and effect relationship." Do you see that?
*4 A. I see that.
Q. And if you go over to the next page, under number three, you state that the collective opinion of all of these people was that, "The direct carcinogenicity of smoke condensate to animal tissue, which is consistent with direct causation, is now fully confirmed but the evidence so far obtained makes it unlikely that this activity is due to any single 'super carcinogen' in smoke." Do you see that?
MR. WEBER: Your Honor, I -- I'd object on that question, it states that the memorandum says this is the collective opinion of all these people.
THE COURT: Yeah. Rephrase the question, counsel.
BY MR. CIRESI:
Q. As a result of the visit by these three individuals and their meetings with all of the individuals listed on the itinerary, do you see that they draw conclusions, of which one is number three? Do you see that?
A. There is a -- a conclusion number three.
Q. And conclusion number three is what I just read; correct, sir?
A. You went through it. I'm not sure that you read it verbatim, but --
Q. Well let me read it again.
A. Okay.
Q. "The direct carcinogenicity of smoke condensate to animal tissue, which is consistent with direct causation, is now fully confirmed but the evidence so far obtained makes it unlikely that this activity is due to any single 'super carcinogen' in smoke." Do you see that?
A. I see that.
Q. And did I read it correctly?
A. You did.
Q. And this was in 1958; correct?
A. It's dated 1958.
Q. Now it is fair to state, is it not, sir, that in the '50s, those who were looking at this issue did not believe it was a super carcinogen but the synergism of all of the carcinogens in cigarette smoke that caused lung cancer?

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A. I don't think that represents the entire picture. I think there were some scientists who in fact were looking for single carcinogens or suggested that some carcinogens may be responsible for -- for the statistical association between smoking and disease.
Q. Well we can --
A. Others -- other scientists had different opinions. And certainly by the late '50s, the idea of -- of cocarcinogenicity was coming into play with the phenol theory that we talked about. I think also over -- over time science has changed its approach in very complex mixtures like tobacco smoke from looking at single components or constituents to looking at the total bulk of the constituents.
Q. It's reported here, sir, that based on the Sloan- Kettering Institute and Yale, TIRC, tobacco companies themselves, that there was no super carcinogen. That's what's reported in this document; correct?
A. That's one conclusion here that -- and it says the evidence so far obtained makes it unlikely that this activity is due to any single super carcinogen.
Q. Thank you.
A. That sounds like there's a lot of questioning still. And furthermore, I don't -- I don't really quite know how this conclusion was arrived at, whether it was one of these people or the entire list that you've read out. I just don't know.
*5 Q. You just don't know.
Now I suppose that if there's an overwhelming number of people that feel one way about something, you can always find someone who may feel differently; correct?
A. In areas like this that are very complicated, there is always debate and there are always people that have different opinions and ideas.
Q. For example, today the World Health Organization believes that smoking causes cancers; correct?
A. They've made that statement.
MR. WEBER: Objection. Objection, Your Honor, the witness did not give medical testimony on direct. That was not part of his testimony.
THE COURT: This isn't medical testimony. He may answer that.
Q. The American Medical Association believes that smoking causes cancers; correct?
A. They've made statements to that effect.
Q. The American Heart Association believes that it causes heart disease; correct?
A. They've made statements to that effect, certainly.
Q. The Centers for Disease Control says that smoking causes disease; correct?
A. I believe that they've made statements similar to that as well.
Q. In fact, every medical organization today in the United States says smoking causes disease; doesn't it?
A. It wouldn't surprise me. I don't know that to be a fact. I haven't polled all the medical organizations.
Q. But of course the tobacco industry says it doesn't; correct?
A. No, that's absolutely incorrect. The position and the understanding is that cigarette smoking, is that -- is that my company does not say that it doesn't. It may. We don't know.
Q. Your company --
A. There's not --
Q. Your company does not say --
MR. WEBER: Objection, Your Honor.
Q. -- that smoking causes disease; does it?
MR. WEBER: The witness was interrupted.
THE COURT: You interrupted the witness. Let him finish his answer, counsel.
A. It's clear to me that cigarette smoking is a risk for a number of diseases. There's no question about that. Whether or not cigarette smoke in itself and by itself causes those diseases is still not scientifically established. It certainly may. And that's exactly what science is still trying to get to. And there's actually in the area of scientific research, some of which is going on in Reynolds today and the bulk of it is going on in the universities, looking at mechanisms of how chronic diseases occur, such as free radical, mechanisms such as these.
Q. When has Reynolds stated that smoking causes disease?
A. It's not scientifically established that smoking in itself, by itself, causes disease.
Q. That wasn't my question.
A. I said it --

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Q. That wasn't my question, sir.
When has Reynolds stated that smoking causes disease?
A. Reynolds has never stated that smoking causes disease.
Q. Thank you.
Now you discussed general and selective reductions; is that right?
A. That was part of the testimony.
Q. And in doing so, you mentioned steak and whether there was benzopyrene when you were barbecuing steaks. Is that -- did you mention that?
*6 A. There was -- I -- I spoke to barbecued steaks as an example to show that benzpyrene is not present only in cigarette smoke, there are other forms of exposure.
Q. And fruit. You mentioned fruit.
A. Sure.
Q. Okay. Now has Reynolds done any tests on people smoking steaks?
A. I don't understand that question.
Q. Well we're talking about inhalation here as a cause of disease; aren't we, sir?
A. I just said a second ago that when -- I spoke to that to -- to try to convey the idea that benzpyrene is present in other sources.
Q. Well --
A. I didn't talk about smoking steaks. That doesn't make sense to me.
Q. No. And it doesn't make any sense to talk about smoking fruit; does it?
A. I still don't understand your question.
Q. Well I'm trying to get an understanding, sir, of why you were mentioning it. Were you trying to imply that there was some biological connection between the benzopyrene that may be on steak or in fruit in terms of causing disease? Were you trying to imply that?
A. I've said twice in the last two minutes, I suppose, that I was trying to convey the idea that cigarettes -- that benzpyrene is present in other exposure means -- by other exposure means. I was certainly not trying to imply any biological implications.
Q. Thank you.
A. Simply that benzpyrene is present in steaks, fruits, vegetables, and other sources.
Q. And do you know how many epidemiological studies have been conducted under varying conditions by varying investigators in varying locals that show that smoking causes disease? Do you know how many?
A. I don't know a number how many, no.
Q. Do you know if any such study has ever been conducted with regard to fruit? Do you?
A. I don't know what studies have been conducted with fruit, with barbecued steaks, with fruit, with vegetables. I -- I've made --
I say again, I was trying to demonstrate that benzpyrene is present in other exposures, that it's not unique to cigarette smoke, that's all.
Q. Can you direct your attention to Exhibit 3838, and it will be in one of the folders up there. It's the 1981 Surgeon General report.
Now in your testimony you said you keep very closely abreast of Surgeon General reports, they're extremely important for scientists in the area of cigarette design and product development. Do you remember that?
A. I remember testimony along those lines. I certainly do look at -- at Surgeon General's reports, and particularly the areas that relate to cigarette design, because from time to time there are some -- a number of sections or -- or specific information about cigarette design.
Q. Now would it also be extremely government -- or extremely important for the government to have the information that the industry had about its products?
A. That's a very general statement -- or question. Can you - - can you be more specific? I don't understand.
Q. Well you said you were keeping very closely abreast of Surgeon General reports, it's extremely important for scientists in the area of cigarette design and product development, and now you just said that that means you look at certain parts of the report. I'm asking you whether, since you were referring to a Surgeon General's report --
*7 Which is a government document; correct?
A. Surgeon General's report is a government document, of course.
Q. Now I'm asking you whether or not it would be important for the government to have at its hands, in its hands, all of the information that the companies knew about their products. Do you think that would be important from the government's standpoint?
A. That's a very general question. Can you give me specifics, and I'll -- I'll try to tell you what I think.

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Q. You can't answer that question?
A. In a general sense?
Q. Yes.
A. No, I don't think I can answer that in a general sense.
Q. Would it be --
A. If you have something specific, I'll be glad to try to help.
Q. Well, would it be important for the government to have all the information a company knew about addiction?
A. If information that a company develops on addiction, for example, adds to the scientific understanding, if it's new information that really increases scientists' understanding of addiction, to use this example, then I think that's important to publish, present, and get out in the -- in the open public literature, in the scientific domain, certainly.
Q. And you know that scientists have stated that in light of the disclosures that have come forward since 1994, that they learned information that they never had before about addiction; don't you?
MR. WEBER: Objection. Objection, Your Honor, counsel is testifying.
THE COURT: Rephrase the question.
BY MR. CIRESI:
Q. Do you know if scientists have published in the Journal of the American Medical Association that they learned information from the internal documents of the industry that started to come forward since 1995? Do you know that?
MR. WEBER: Same objection, Your Honor.
THE COURT: No, you may answer.
A. I'm aware that there have been statements to that effect in the Journal of the American Medical Association.
Q. You've read those; haven't you, sir?
A. I've read portions of them, skimmed some of them.
Q. And can you direct your attention to Exhibit 18989?
A. I'm sorry, which number?
Q. 18989.
A. I don't see one in my booklet.
Q. Let me hand you one, sir.
MR. CIRESI: May I approach, Your Honor?
MR. WEBER: Is that the correct number? Because we don't have a 18989 on our list.
MR. CIRESI: That is the correct number.
MR. WEBER: It was not designated, Your Honor.
Q. Have you read this before?
MR. WEBER: Your Honor, excuse me.
THE COURT: Counsel, just a moment, please. I want to make sure counsel is done.
MR. CIRESI: Oh, I'm sorry.
MR. WEBER: The document, the number that was just given, was not designated.
MR. CIRESI: Well he stated that he's read something. I want to see if he's read this before. I'm using it to refresh his recollection, Your Honor.
THE COURT: All right.
MR. CIRESI: Have you read --
THE COURT: Does counsel have a copy though? Can we provide a copy to counsel?
*8 MR. WEBER: Your Honor, I'd object inquiring about a non- designated document. We -- that has not been the practice here. They -- they gave us six or seven supplemental designations, but they never designated this, and I --
They designated other documents from this very -- in this very line, but not this one.
MR. CIRESI: Your Honor, he's just testified that he's read some. I'm simply asking if this is one.
THE COURT: All right. You may answer the question.
BY MR. CIRESI:
Q. Have you read this document, sir?
A. I read it some time ago.
Q. Okay. And you're familiar, then, with the fact that it has been stated in the Journal of the American Medical Association that the documents of the industry that came forward since 1994 show "that research conducted by the tobacco companies into the deleterious effects of tobacco was often more advanced and sophisticated than studies by the medical community;" correct?
A. That's what it says, and I disagree with that.

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Q. Well do you know anything about the biological implications of these documents?
A. We're not talking about biological implications. The words say that the tobacco companies' research was more advanced and sophisticated than studies by the medical community. What I've seen leads me to the conclusion I disagree with that. We looked to the outside medical community, we worked with them, we did contract studies, so I disagree with that statement. But that's what it says here.
Q. And you're not a doctor; are you?
A. I'm not a medical doctor.
Q. You have no training in biology; do you?
A. I have no significant training in biology.
Q. And the documents show "that executives at B&W knew early on that the tobacco use was harmful and that nicotine was addictive and debated whether to make the research available or public." Do you see that?
MR. BERNICK: Your Honor, I object to the question, it violates the court's prior determination at side-bar.
THE COURT: No, you may answer that.
A. I see that statement.
Q. And it also shows "that the industry decided to conceal the truth from the public;" correct?
A. That's what it says here. I don't understand that, frankly. That's not been my experience at Reynolds.
Q. And if you go down to the last bullet point, it says that the documents show "that despite their knowledge to the contrary, the industry's public position was, quote, and continues to be, end of quote, that the link between smoking and ill health was not proven, that they were dedicated to determining whether there was such a link and revealing this to the public, and that nicotine was not addictive." Do you see that?
A. Is your question do I see that?
Q. Yes.
A. Yes, I see that.
Q. And that was reported in 1995, correct, in the Journal of the American Medical Association?
A. That's a statement in the Journal of the American Medical Association, 1995.
*9 Q. And -- and the next statement was that "We think that these documents and the analysis merit the careful attention of our readership," and the readership are doctors of the Journal of the American Medical Association; correct?
A. By and large.
Q. And scientists; correct?
A. By and large doctors and scientists.
Q. And the statement goes on to state, "because they provide massive, detailed, and damning evidence of the tactics of the tobacco industry. They show us how this industry has managed to spread confusion by suppressing, manipulating, and distorting the scientific record." Correct?
MR. WEBER: Your Honor, I'd object to any further reading of an editorial that was not designated for this witness. It's an editorial in the first place, it wasn't designated.
THE COURT: You may answer the question.
Q. Is that what's reported, sir?
A. That's what's said here, and it's contrary to my experience in the industry.
Q. Did you write a letter to the Journal of the American Medical Association detailing why you believe this was false when you read this?
A. Did I personally?
Q. Yes.
A. No.
Q. And can you go to the last page. I'm sorry, the second- to-the-last page, sir. Page 257.
A. Okay.
Q. And do you see there it's relating to the articles that were published in that Journal of the American Medical Association?
A. In the bottom left-hand column it says "The Articles." Is that what you're referring to?
Q. That's correct.
A. Okay.
Q. And it states that "These five articles provide a careful analysis of the documents?"

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A. That's what it says.
Q. And then it goes on to state in that paragraph, "The articles show that the effect of tobacco company tactics, long suspected, has been to obfuscate the conclusions of scientists, to confuse the public, and to assist greatly the tobacco industry in its successful efforts to influence the political process in its favor." Do you see that?
MR. WEBER: Same -- Your Honor, I'd make the same objection again.
THE COURT: Overruled. You may answer.
A. I see that statement there, and again that's been -- that's contrary to my experience at Reynolds. We've worked hard to try to modify products to address the smoking-and-health issues, we've worked with scientists, we've tried to develop biological assays, new chemical analyses, we've certainly not tried in my opinion to obfuscate the conclusions of scientists.
Q. And do you see where it states --
By the way, you didn't write in and say that to the Journal of the American Medical Association; did you?
A. Me personally?
Q. Yes.
A. No.
Q. And it goes on to state, "The surgeon general's report of 1964 would have been far more decisive in its conclusions and recommendations had the evidence available to executives of B&W been available to the surgeon general's committee. We can only speculate how many lives would have been saved and how much suffering would have been averted." Do you see that?
*10 MR. WEBER: Same objection, Your Honor.
THE COURT: You may answer that.
A. I see that statement here.
Q. Now when Surgeon General's reports are done, they are done pursuant to studies conducted by doctors and scientists; correct?
A. There's a lot of scientific information, both medical and chemical in there.
Q. And those doctors and scientists look to information that is available in the field regarding the subject matter that they are testing; correct?
A. I'm sorry, I don't understand that. Can you repeat it?
Q. Those scientists and doctors look to information in the field with respect to the subject matter that they are investigating; correct?
A. I think any scientist keeps abreast of the literature in their field, certainly.
Q. And the more information that those scientists and doctors would have had who have worked -- been working on the Surgeon General's reports, the more effective would have been their investigation into what they were investigating; correct?
A. I think a scientist needs to be fully abreast of the available information in the literature. I think scientists also, if they have information that contributes to -- to the advancement of science, should publish and present that information.
Q. And the scientists who were working on the Surgeon General's reports all the way up to 1994 did not have all of the information that was extant in the companies' files with respect to testing, addiction, causation of diseases; did they?
MR. WEBER: Your Honor, I would object. Counsel is testifying. He hasn't laid a foundation.
THE COURT: You may answer that.
THE WITNESS: I'm sorry, can you repeat that?
MR. CIRESI: Certainly. Can we have the question back, please.
(Record read by the court reporter.)
A. In a general sense I would -- I would conclude that scientists outside certainly didn't have access to all the scientific information in all of the companies' files, but -- but I think, also, that all of the information that's in the companies' files necessarily wouldn't have changed the -- the scientific -- the scientific opinions and information that was available.
Q. That's not what the doctors who signed that editorial in the Journal of the American Medical Association said; is it, sir?
A. No, that's clearly not what the doctors who signed this editorial piece believed or felt.
Q. Now can you direct your attention to Exhibit 3838, which is one of those Surgeon General's reports back in 1981.
A. Is that in a ring binder?
Q. It should be in one of the red rope files there.

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A. Okay. The '81 Surgeon General?
Q. '81 Surgeon General's report.
Now sir, as of 1981, do you know if a substantial portion of the population did not know how dangerous smoking was or whether the dangers of smoking applied to them, and therefore, did not have an understanding of the health hazards of smoking? Do you know?
MR. WEBER: Your Honor, I'd object, this is well beyond the scope of the direct.
*11 THE COURT: No, you may answer that.
A. Are you referring to a passage here?
Q. No, I'm not. I'm asking you a question.
A. Okay. I'm sorry, can you ask that again?
Q. Certainly will.
Do you know if, as of 1981, a substantial portion of the population did not know how dangerous smoking was or whether the dangers of smoking applied to them, and did not have an understanding of the health hazards of smoking? Do you know?
A. Well I'm not an expert in the area of awareness or what people know or believe or think, I'm certainly not an expert in that area. My common sense, based on what I do know, of what I've seen in the popular press is that most of the people, almost all of the people in this country not only think that cigarette smoking is a risk for disease, they believe it's the cause of disease.
Q. Now do you know that the FTC staff report on cigarette advertising in 1981, May of that year, issued a statement stating a substantial portion of the population does not know how dangerous smoking is or whether the dangers of smoking apply to them, and, therefore, do not have an understanding of the health hazards of smoking?
MR. WEBER: Let me object, Your Honor. The witness was not on direct permitted, pursuant to objection, to testify about advertising or marketing.
MR. CIRESI: Your Honor, he's been proffered as an expert on cigarette design.
THE COURT: Okay. All right. You may answer that.
Q. Did you know that, sir?
A. I am generally aware of the FTC document that you're talking about. I'm generally aware that there's a statement similar to that in there.
Q. And do you --
A. I know that there's a difference of opinion among even experts about the level of awareness of the risks of smoking. For example, Viscusi.
Q. So you don't know who knew what about smoking in the population; do you? You yourself.
A. I'm not an expert in the area. I've not done studies, I've not gone out and done polls of -- of smokers or non-smokers, even, and tried to evaluate what they believe about the risks of smoking. I have a general, common-sense conclusion that's based on my reading of the popular literature, the newspapers and magazines and the like.
Q. Now sir, one of the basic tenets of design of any product is to know the environment of use into which you're going to put your product; is it not?
A. That's an awfully general question. Can you give me a more specific --
Q. You've never heard that --
A. Give me an example.
Q. You've never heard that, as a designer of a consumer product, that you should know the environment of use into which you're going to place your product?
A. What do you mean, "environment of use?"
Q. You don't even know the term; do you?
A. I don't understand what you mean by "environment of use." I'm not trying to be difficult, I'm just trying to understand what you're asking me.
Q. I'm not trying to be difficult either.
*12 You've never heard the term "environment of use;" correct?
A. It's not a term I use.
Q. Now you're not a --
You don't have an engineering degree; do you?
A. I'm not an engineer.
Q. So you haven't obtained any formal training in design engineering; have you?
A. I'm not a design engineer.
Q. But you are in charge of design at Reynolds; is that correct?
A. I'm responsible for product development, analytical chemistry research, and analytical chemistry routine support for R. J. Reynolds Tobacco Company.
Q. Well that's a little different than I thought you said on direct. Are you in charge of design for cigarettes?

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A. The staff under my direction and me, throughout my history of employment, have worked on the design of cigarettes. You asked what I was responsible for. I am responsible for product development and analytical chemistry research.
Q. I didn't ask you if you had worked on the design. My question is a little different.
Are you responsible for the design of cigarettes?
A. I'm responsible --
As a product developer, I'm responsible to develop cigarette designs that meet certain objectives.
Q. The entire design of cigarettes you're responsible for?
A. Not the entire design. There are groups that have specialties in certain areas that, because of their specialty, work with my product developers hand in hand to make sure that we get the best designs possible.
Q. Who is in charge of the overall design of cigarettes at Reynolds?
A. Well I guess the way you're asking me the question, the person that has the ultimate responsibility in cigarette design and because of the -- the nature of the cooperative work we do with our biologists, toxicologists and cigarette design researchers, our basic researchers, because of the cooperative nature of how we do our job, the person that's ultimately responsible is the head of research and development.
Q. Who is that?
A. That's Dr. Gary Berger.
Q. Now "environment of use," what that means, I want you to assume, is who's going to be using your product and how they're going to be using it, in what way they're going for using it. Does that help you in understanding what the "environment of use" is?
A. The "who" I understand very clearly. The "in what way" I -- I'm not sure I understand that. What do you mean?
Q. How they might smoke it in terms of puffs, puff volume, whether they compensate, how many cigarettes they may smoke, whether it's youth that are smoking, all of these things, the environment of use. Do you understand that?
A. I think I'm understanding a little bit more of the question that you're asking.
Clearly on cigarette design efforts we need to know what our -- what our objectives are for the cigarette design. That includes who the smokers are that we -- we hope will smoke that new product.
For example, we want to steal market share from Marlboro. That's one of our big goals. And so then we develop action steps underneath that so what we -- we think we can steal smokers from a -- from Marlboro as a product by doing these changes to a cigarette. In some cases we may go out and -- and evaluate smokers' reaction to those products, their -- what they describe as taste characteristics, the overall acceptance. We do some consumer studies of different smoker groups; for example, how males may respond to that product versus females. So we do that kind of work to see if we've met our targets.
*13 Q. Do you do work to see whether or not people might be concerned about their health?
A. Again, that's a very general statement. Are you asking me do I go out and -- and poll smokers about what they believe about smoking and health?
Q. That would be one. Have you done that?
A. I have not done that.
Q. Okay. Has Reynolds done that?
A. I'm not entirely sure. I don't know.
Q. Do you -- and by "you" I mean Reynolds -- go out and determine whether or not people are concerned about their health, so therefore they're considering quitting?
A. I'm not entirely sure about that either. I don't know.
Q. Do you go out and investigate whether or not, if they're concerned about their health and therefore may quit, whether they would smoke a lower tar cigarette?
A. We've conducted some focus group studies of -- of -- along those lines, where we try to understand if smokers would ultimately want lower tar cigarettes and how that may -- and -- and what we can do as cigarette designers and product developers to improve the acceptance of ultra low tar products.
Q. So that you look at a smoker and you say that smoker has some options: A, she can quit, or B, she might smoke a different product; correct?
A. Well I think the smoker certainly has options. They can choose not to be a smoker, they can choose to be a smoker, and if they choose to be a smoker they can choose among a broad range of products in the market, going from the full- flavor/higher tar products all the way down to the very ultra low tar products that have tar and nicotine levels so low it's difficult to measure.

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Q. And you've conducted focus groups on that precise issue; haven't you?
A. We've conducted focus groups on -- with smokers, as I recall, in a general sense, on smokers and their willingness/interest in ultra low tar products or low tar products, what they perceive as negatives of those. Because frankly, we want to improve consumer acceptance of the ultra low tar product category to try to make those products more acceptable so smokers will continue to move to lower and lower tar levels.
Q. You want to keep them in the marketplace; don't you, sir?
A. We certainly --
We offer products to smokers to purchase in the marketplace if they choose. Certainly we like to see more business. We'd like to see more business at the expense of the competitors. There's no question about that. The facts are that smokers are quitting in record numbers.
Q. Sir, you want to keep them in the marketplace; correct?
A. We obviously want our business to increase at the expense of competition. The -- the -- the number of smokers that are quitting is -- is growing. Smokers are quitting in record numbers. That does cut into our business.
Q. Well I didn't ask you about, you know, whether people are quitting or anything like that.
A. Uh-huh.
Q. I simply asked you a very simple question. Do you --
*14 MR. WEBER: Object to the commentary, Your Honor.
MR. CIRESI: Well --
THE COURT: Counsel --
MR. CIRESI: I agree it was commentary, Your Honor.
Q. Let me just repeat the question. And it's pretty simple. You want to keep them in the marketplace; correct?
A. I think that's an oversimplification. We provide products to smokers who want to smoke, and if you want to smoke, you provide a range of products.
Q. And --
A. If a person -- excuse me. If a person wants to quit, it's their business, that's their choice. Obviously, as a company, we want to increase our market share, we want to beat our competition. But it's the smoker's choice.
Q. And to increase your market share, you got to keep the smokers in the market; don't you?
A. Or beat our competition and somehow have better products than our competition does, and steal market share from them because we have better products. That's the marching orders of product development, by the way.
Q. Now in marketing, then, one of the objectives of marketing is to keep people in the marketplace; correct?
MR. WEBER: Objection, Your Honor, A, it's been asked and answered, but also misstates what he said.
THE COURT: Well it hasn't been answered yet. You can answer that.
THE WITNESS: I'm sorry.
Q. One of the objectives of your marketing is to keep smokers in the marketplace to increase your market share; correct?
A. One of the objectives of our marketing, as I understand it, is to increase our market share. There are different ways to do it. Stealing the competition's smokers from different products; to try to keep -- or to give people options to quitting, for example, the very low tar products, those are options, and certainly every - - every smoker makes his own decision about whether to keep smoking, whether to move to low tar products, whether to -- or to quit.
Q. That --
I didn't ask you any of those things. I'm asking you --
A. You --
Q. -- about Reynolds. All right?
A. You -- you asked me about marketing objectives, and I said that one -- my understanding, the marketing objective is to increase our company's market share, share of market, so that our business grows, so that the Reynolds business grows at the expense of my competition.
Q. Now, sir, if -- and I want you to assume that there's been testimony here that one of the objectives of the marketing of the industry is to keep people in the market in order for any of the companies to increase their market share. You'd agree with that; correct?

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MR. WEBER: Let me object to his characterization of his own witness's testimony, unless he's going to be specific about who it was, Your Honor. That's --
MR. CIRESI: If he has a legal objection, Your Honor --
MR. WEBER: That's a 403 objection.
THE COURT: Okay. Overruled.
MR. CIRESI: You may answer.
THE WITNESS: I'm sorry, can you say that again?
MR. CIRESI: Certainly. We'll have it read for you. Could you read it back, please, Mr. Stirewalt.
*15 (Record read by the court reporter.)
A. In a simplistic sense, yes, I agree with it. If smokers quit smoking, it hurts -- it reduces the market share of my company, certainly reduces the market share of my competitors. The facts are that smokers are quitting in record number, and I think the -- the major option we have at Reynolds is to, in fact, take share of market from our competitors. The number of smokers is -- is declining very rapidly.
Q. Now if a person is addicted, his or her choice to quit would be impaired; wouldn't it?
MR. WEBER: I want to object again, Your Honor, the witness did not testify about the subject of addiction on direct. It's beyond the scope.
THE COURT: Well he did testify that people are free to quit, so he can answer, answer this question.
A. If -- if by the word "addiction" you mean that people cannot quit because of an addiction to cigarettes, I don't agree with you. Addiction is a term that people use very loosely. There are a lot of different definitions for
addiction. I believe that people can quit if they choose to. For some people it may be hard because it is a habit, no question about it; for some people who make up their mind, it's certainly very easy. There's differences among different people.
If you're suggesting that addiction means that people cannot quit, I don't agree with you.
MR. CIRESI: I move to strike.
THE COURT: That answer will be stricken.
Q. It's a very simple question, doctor. I'm going to ask it again.
A. It's a very simple question --
Q. Excuse me.
A. -- but with a very confusing word, the word "addiction," because of the different definitions.
Q. If a person is addicted, their free choice is impaired; correct?
A. If --
It depends on the definition of "addiction."
Q. Are you an addiction specialist?
A. No. But you're asking me questions of addiction. I'm giving you my common-sense opinion on what I see, what I think in - - in the area of addiction.
Q. When did the definition -- let me back up.
What definitions are you talking about? You said you're not an expert. What definitions are you talking about?
A. In a general sense --
MR. WEBER: Your Honor, I'd object to this. The issue was created on cross by asking questions. The witness wasn't offered in it. And now it keeps expanding, and I think that's inappropriate.
THE COURT: Well the witness keeps answering about his version of addiction. He's entitled to ask the question on it. If he wants to give us his version of addiction, he's entitled to pursue it.
BY MR. CIRESI:
Q. Now sir, you talk about differing definitions. Are you talking about medical definitions of addiction?
A. I'm not an expert in the area of addiction. I do know that there are different definitions. For example, the World Health Organization, WH0, years ago had a very classical definition of addiction which included increase -- increased desire for whatever it is that's addictive, may include anti-social behavior, a number of things, and I'm saying this very loosely because I'm not an expert. I know that the -- the term "addiction" has changed at least in American society to where people consider many things addictive, like chocolate, the Internet, and so forth.
*16 Q. How many people per year does the Internet kill?

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MR. WEBER: Objection, Your Honor, it's argumentative and beyond the scope.
THE COURT: Well it's not beyond the scope, but it is argumentative.
Q. Do you know if there's been any studies about how many people chocolate kills?
MR. WEBER: It's argumentative, Your Honor.
THE COURT: That is argumentative.
Q. The World Health Organization changed its definition of addiction in 1964; didn't it?
A. I think there have been some changes to the definition. I can't keep up with that, frankly.
Q. You don't know any other medical definitions of addiction; do you, sir?
A. My sense is that the term "addiction" is not used in a medical sense today in our society. I think it means different things to different people.
Q. The Surgeon General found that cigarette smoking was addictive in 1988; didn't he?
A. The Surgeon General in his 1988 report concluded that cigarette smoking was addictive.
Q. And that is a medical document; correct?
A. The Surgeon General report a medical document?
Q. Yes.
A. I wouldn't call it medical -- a medical/science document. I think it's a -- it's a government document that refers to chemistry, biology, and medicine.
Q. Well you've referred to the Surgeon General reports to select out certain passages in the course of your direct testimony; haven't you?
A. Well I've -- I've selected portions that speak to cigarette design. There are, in -- in a number of the Surgeon General's reports, discussions about cigarette design, attempts at selective reduction, attempts at general reduction. The one in front of us, for example, is -- is a good example. The title of it's "The Changing Cigarette," and the Surgeon General went in and evaluated not only biology, but he evaluated chemistry and changes that have occurred to the cigarette.
Q. And the government doesn't manufacture cigarettes; does it?
A. I'm not entirely certain, but I don't think so.
Q. It is the defendant manufacturers here who manufacture cigarettes; correct?
A. Are you asking in this trial, the defendants manufacture cigarettes?
Q. Yes.
A. That's correct.
Q. They are the ones who have a responsibility, as you've said, to know their product; correct?
A. The cigarette manufacturers in this room have a responsibility to understand the product, to know what those products do, and to do the kind of work that I've already talked about, to understand smoke chemistry, to undergo the attempts that Reynolds and my competitors have undertaken to change smoke chemistry through cigarette design.
MR. CIRESI: Move to strike the answer in terms --
THE COURT: The last sentence will be stricken.
BY MR. CIRESI:
Q. Now what was the first low tar cigarette Reynolds put on the market?
A. How do you define low tar?
Q. Lower than a previous accepted -- well no, I take that back.
*17 How do you define low tar?
A. Okay. The -- using my definition, I think the first low tar cigarette was Vantage, as I recall. And Vantage in fact became the first successful low tar cigarette in -- in the -- in the U.S. market. It was introduced in the late '60s or around 1970, thereabouts.
Q. You didn't answer my question. My question was how do you define a low tar cigarette?
A. Within the industry and also very well known to the Federal Trade Commission and others, there are categories of tar levels that define what we call full-flavor or regular, sometimes called Winston Red or Marlboro Red; then there's a low tar category, and the low tar category generally goes from about six to about 14 milligrams per cigarette; there's an ultra low tar category that's -- that's five and under; except for a fourth category that's called the lowest, and those are the one- milligram cigarettes and the two-milligram cigarettes.
Q. Is there --
A. So I would call -- excuse me. So I would call a low tar product between about six and 14 milligrams. An ultra low tar is below that.

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Q. Okay.
A. That's how I would define it.
Q. Thank you.
So your definition of a low tar cigarette is one that has tar between six and 14 milligrams?
A. Approximately, yes.
Q. What type of epidemiological studies did Reynolds conduct on Vantage before it placed it into the market to ascertain whether it was safer or not than other cigarettes?
A. I'm not aware that Reynolds has conducted epidemiological studies on Vantage, and there is no way to prove whether one cigarette is safer than another. We've already discussed that.
Q. Sir, my question is very simple. Did Reynolds conduct any epidemiological study to determine whether Vantage was safer or not before it
---------- Page 46 follows ----------
placed it into the stream of commerce for people to smoke?
A. I'm not aware that R. J. Reynolds conducted any epidemiological studies on Vantage before it placed it in the market, and there's no way to prove whether that tar reduction would have been safer or not.
Q. What type of animal studies were conducted on Vantage cigarettes before it was placed into the stream of commerce?
A. I don't know.
Q. Now you do know that when a product is classified as a drug, it must go through certain testing; correct?
A. I'm aware of that in a general sense. I'm certainly not intimately familiar with Food and Drug Administration regulations and law.
Q. Has to go through Phase I, Phase II and Phase III studies. You're that much aware of it; aren't you?
A. Sounds familiar.
Q. Has to go through animal testing; correct?
MR. WEBER: Objection, Your Honor, unless he lays a foundation for this.
THE COURT: Well I think this is pretty common knowledge.
A. I think --
Well I'm not sure of the details of how the FDA decides on testing protocols. I know that there are Phase I, Phase II, Phase III clinical trials. I know that there's in many cases, probably, chemistry and biology required. Beyond that I don't know the details.
*18 Q. And what you have to show is that the product is safe and effective before it can be placed onto the market; correct?
A. That's my general understanding.
Q. Now you talked about Premier; correct?
A. Yes.
Q. Premier was not submitted to the FDA to go through that type of testing; was it?
A. Before its launch in the market?
Q. Yes.
A. No, it wasn't. Actually, we provided a lot of data to the FDA on Premier, both chemistry and biology, after Premier was attacked, as we talked about yesterday. There were a number of attacks to try to ban Premier in the marketplace as a drug-delivery device and for other reasons, and R. J. Reynolds presented quite a lot of information to the FDA to make it clear what that product is and that that product represents progress in the cigarette market.
MR. CIRESI: I move to strike the non-responsive portion of that response.
MR. WEBER: It was responsive, Your Honor.
THE COURT: Sorry?
MR. WEBER: That was a responsive answer. The question is what was submitted to the FDA.
MR. CIRESI: No, I did not ask what was submitted to the FDA.
MR. WEBER: He said, "Premier was not submitted to the FDA to go through that type of testing; was it?" And he went ahead and discussed the significance of it.
THE COURT: That's a different question.
MR. CIRESI: Yes.
THE COURT: Quite a bit different. Why don't you just re-ask the question.
Q. Let me re-ask it again.

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Please, doctor, if you don't understand my question, again tell me, we'll get through this faster. All right?
A. But I think I understand your question. I'm trying to give you a complete response.
Q. No, it really --
A. Okay. But if we misunderstand, please --
Q. It really wasn't, sir. My question is very simple: Did Reynolds submit Premier to the Food and Drug Administration for approval? Did it?
A. R. J. Reynolds did not submit Premier to the FDA for approval as a drug- delivery device because Premier is a cigarette. We considered it a cigarette, and we presented extensive data to the FDA about that.
Q. And the FDA is today saying that cigarettes are drug- delivery devices; correct?
A. I think the FDA has taken that general position.
Q. And that position has been taken since 1994 when all of the documents started to come out; correct?
MR. WEBER: Objection, Your Honor, counsel is testifying.
THE COURT: Yeah. Rephrase it.
Q. Do you know when the FDA put took that position, sir?
A. Specifically, no, I do not.
Q. It was post-1994; wasn't it?
A. It was after '94 certainly, but I don't know a specific date.
Q. Now directing your attention then to the 1981 Surgeon General's report, do you know what the very first conclusion of that report was? Without looking at it, do you remember?
A. No, sir.
Q. Can you turn to the preface which bears the number Roman numeral v just at the bottom. Talks about the basic findings.
*19 A. Yes.
Q. Can we have the next page, please. Number one, "There is no safe cigarette and no safe level of consumption." Correct?
A. That's what he concluded.
Q. And number two, "Cigarettes -- Smoking cigarettes with lower tar -- yields of 'tar' and nicotine reduces the risk of lung cancer and, to some extent, improves the smoker's chance for longer life, provided there is no compensatory increase in the amount smoked. However, the benefits are minimal in comparison with giving up cigarettes entirely. The single most effective way to reduce hazards of smoking continues to be that of quitting entirely." Correct?
A. You read that accurately, yes.
Q. Now the minimal benefit was based upon some epidemiological studies that had been conducted as of that date that took a look at a point in time; isn't that right?
A. I think that's generally correct. There were a number of epidemiological studies that were conducted that showed a statistically significant reduction in risk comparing filtered versus non-filtered cigarettes, with the filtered lower tar showing reduced lung cancer mortality rates. I think there's been some additional information trying to look at differences among the filtered cigarettes to see if lower tar products pose less risk, and I think, depending on who you talk to, you arrive at different conclusions. Certainly Samet in 1994, along with the same chart we saw yesterday, talked about lower tar cigarettes representing reduced risk.
Q. Sir, I asked you "at that time." '94 was later; right?
A. '94 was later.
Q. All right. In fact there have been an overwhelming number of later studies that have shown that low tar cigarettes are not safer; isn't that right?
MR. WEBER: Let me object. There's no foundation for that. He's testifying, Your Honor.
THE COURT: Okay. You can rephrase the question.
Q. Are you aware that there are later studies in abundance which show that there is no benefit to lower tar cigarettes?
A. I think -- and I'm not an epidemiologist, but my understanding of what's in the literatures, that there are some studies that suggest there is, there are some studies that suggest there isn't. I think there's -- it's -- it's clear to me that there has been a reduction comparing filtered versus non- filtered, and I think the experts tend to agree with that. There are some questions among the filtered products. As I said, I think Samet agreed that - - that there probably has been a reduction. My common sense tells me that less ought to be better, whether you can prove it in statistics, prove it with epidemiology or not.

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Q. I didn't ask you for your common sense, I asked you about studies. Did you hear me?
A. I understand --
MR. WEBER: Objection to the commentary --
A. I understand --
MR. WEBER: Object to the commentary again, Your Honor.
THE COURT: Well ask another question.
Q. And sir, indeed, a seminar that you attended concluded that the claims of the industry that filtered cigarettes were safer were -- was patently false and the companies knew it; isn't that right?
*20 A. I remember something like that being concluded by that group. And I don't agree with it.
Q. Well this was the FTC seminar that you attended which you said you were invited to, isn't that right?
A. Yes, that's correct. And because I was there and -- and engaged in discussions with them doesn't mean I agree with every conclusion.
Q. Okay.
A. I agree with some of them.
Q. You agree with some of them; is that right?
A. That's what I said, yes.
Q. But the doctors there, which included the ones I asked you about yesterday --
Do you remember that, whether they said that you had concealed information? Do you recall that question?
MR. WEBER: Could we have a document reference, Your Honor, as to what we're dealing with?
Q. Do you -- do you recall the question yesterday?
THE COURT: Counsel, just a moment, please. Can you give counsel a document reference?
MR. CIRESI: Sure. It's 4994.
Q. I'm not on the document right now, doctor. Doctor, I'm not on the document right now.
Do you recall yesterday that you said that with regard to the doctors that I asked you about, whether or not they had ever said that the industry had concealed, you said you never heard them say that.
A. I don't recall them saying that.
Q. You don't recall me asking you that, or --
A. I said I don't recall them saying that.
Q. All right. Can you turn to Exhibit 4994. That's in the other red rope right in front of you, sir, I believe on your right there.
Now that's "The FTC Cigarette Test Method for Determining Tar, Nicotine, and Carbon Monoxide Yields of U.S. Cigarettes," and this is the report of an NCI ad hoc committee of the President's Cancer Panel which you attended on December 5th and 6th of 1994; correct?
A. That's correct.
Q. This is after the documents started coming out regarding the industry; correct?
A. I think that's correct, yes.
Q. It is after Representative Waxman held his hearings in Congress in the spring of 1994; correct?
A. That's correct.
Q. And it was at that time where the CEOs of the defendant manufacturing companies swore under oath that nicotine was not addictive; correct?
MR. WEBER: Objection, Your Honor, this is well beyond the scope of direct.
THE COURT: No, you may answer.
A. That's correct.
Q. And it is after the FDA started looking into regulating cigarettes as drug-delivery devices; correct?
A. In a general sense, that's correct.
Q. Now if you go to the participants on page Roman numeral i -- ix, you'll start seeing the acknowledgments.
A. Yes.
Q. There was a representative from the Food and Drug Administration; correct?
A. That's correct. She was a lawyer.
Q. Dr. Henningfield, Ph.D.; correct?
A. Jack Henningfield, yes.
Q. Okay. And Michael Eriksen; correct?

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A. That's correct, from CDC.
Q. And someone from the Federal Trade Commission?
A. Ms. Modell.
*21 Q. Shira Modell; correct?
A. Right. Right.
Q. The chairman of the panel was Harold Freeman; correct?
A. That's right.
Q. The executive secretary was Dr. Maureen Wilson; correct?
A. That's right.
Q. And then on the next page we see the panelists, do we not?
A. That's correct.
Q. And they're listed starting with a Dr. Bock, a Ph.D. from Miami, Florida?
A. That's correct.
Q. And then there are the invited speakers on the next page; is that correct?
A. Yes.
Q. And there you see Dr. Benowitz; correct?
A. That's right.
Q. And as you go down, you see Dr. Henningfield; correct?
He's a Ph.D.; isn't he?
A. Henningfield?
Q. Henningfield, yes.
A. Yes.
Q. He's a Ph.D.; correct, sir?
A. I don't really recall. I'm sorry.
Q. Well you -- you said you met with him and talked with him.
A. I can't recall whether he's a Ph.D. or an M.D.
Q. Well why don't you look right on that page. It says Ph.D.
A. It says Ph.D.
Q. Okay. And you see Dietrich Hoffmann. He's a Ph.D. too; isn't he? He's not a doctor.
A. Yes, he's a chemist.
Q. And then if you go over on to the next page, you'll see Dr. Samet there; correct?
A. Yes.
Q. Okay. And then under the invited speakers there's two people listed as tobacco industry representatives. This is after they list the invited speakers; correct?
A. That is interesting. It's separated out; isn't it?
Q. It is, yes.
A. Yes.
Q. And one of them is you; correct?
A. That's right.
Q. Now you were able to fully participate in all of the discussions here; weren't you?
A. I was able to give a presentation to participate in the discussions. I participated in the discussions that involved my area of expertise, at least to a degree I did. I made it clear what I knew and believed in those discussions. What I was not able to do as an invited speaker was to deliberate with the committee -- with the central committee itself and arrive at conclusions. So I was essentially --
And all of these invited people, including Henningfield and Benowitz, were essentially information suppliers to this central committee.
Q. Well you were --
So you were only participating in some that you had expertise in; is that fair?
A. I was there to talk about cigarette design and what we know about the FTC numbers and the FTC method, and to provide my expertise. The point I'm making is that there was the FTC -- I mean, sorry, the NCI committee that actually deliberated in executive session separate from the invited speakers.
Q. That wasn't my question. My question was: You only participated in those sessions where you had some experience or work history?
A. Well I'm not sure I completely understand what you're asking me, but I was there for the conference, for -- for the entire conference.
Q. Well did you --
A. I participated where I had something to add or to -- to speak to. I mean in the areas of epidemiology, for example, I'm not an expert, there's -- there's really nothing I could add there. Experts were at the -- at the panel.
*22 Q. Didn't you participate in all discussions?
A. I said I was there for the entire meeting except for the executive session at the end.

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Q. And in fact it's reported in this document that you did participate in all discussions; isn't it?
A. Yes. But I'm -- what I'm -- what I'm telling you is I can't participate in epidemiology discussions if I'm not an epidemiologist and really know the detail.
Q. And in fact you stated here that one of the things you can't talk about, because you're only a chemist, was to say whether or not nicotine was an important compound for taste characteristics.
A. I beg your pardon?
MR. CIRESI: Can you read the question back.
(Record read by the court reporter.)
MR. WEBER: Objection, Your Honor, that's contrary to the record. It's a misstatement.
THE COURT: I think you have to rephrase that, counsel.
MR. CIRESI: All right.
BY MR. CIRESI:
Q. Did you at this conference state that with regard --
Let's take tar first. With regard to the components of tar, you can't look into them and say it's a very important, tasteful and flavorful compound?
A. I don't remember saying that. I know that a number of constituents in tar are very flavorful compounds.
Q. Okay. Can you take a look at page 191.
A. Sure.
Q. I'd like to first of all read Dr. Freeman's question to you. "Dr. Townsend, I just want to ask one question, and it may be a little naive. Several times you have mentioned the value of tar in cigarettes because you say it is associated with taste. Even conceding that although it seems to be a thing that is killing people.
"But what about nicotine? What is the value of nicotine and cigarettes, and why could it not be dramatically reduced?
"DR. TOWNSEND: Nicotine, of course, is part of the smoking sensation. It does provide a sensation to the smoker. I think one of our competitors found that tobacco that had been treated to remove all the nicotine was not successful in the marketplace.
"More than that, just as I cannot look into the components of tar and say, this is a very important, tasteful, and flavorful compound. You know, I am not equipped as a scientist -- as a chemist to say nicotine is an important compound for this aspect of taste characteristics."
Now did you say that there?
A. That's what's quoted here. I didn't recall saying that.
Q. Now you received a copy of this; didn't you?
A. Yes.
Q. You've read it many times; haven't you?
A. I've read portions of it many times.
Q. And you've never written to the FTC and said, "I didn't say that. Please change it."
A. I think these are portions taken out of the discussion. I don't doubt that I said this, you know, I just don't remember it.
Q. Now can we go back, then, to the Roman numeral iii and the foreward. You remember you were talking about filters a little earlier and epidemiology? Do you recall that testimony?
*23 A. Yes.
Q. Now if you could just look at the top. "In response to the emerging scientific evidence that cigarette smoking posed a significant health risk to the user, in the early 1950's the major cigarette manufacturers began widespread promotion of filtered cigarettes to reassure smokers that, regardless of whatever unhealthy constituents were in cigarette smoke, filters were a 'scientific' breakthrough.
"Advertisements for Viceroy's 'health guard filter' stated, 'DENTISTS ADVISE -- Smoke VICEROYS -- The Nicotine and Tars Trapped by The Viceroy Filter CAN NEVER STAIN YOUR TEETH!' and 'Leading New York Doctor Tells His Patients What to Smoke, dash, Filtered Cigarette Smoke Is Better For Health. The Nicotine and Tars Trapped...Cannot Reach Mouth, Throat Or Lungs.' Chesterfield was 'Best for you, dash, low in nicotine, highest in quality,' while L&Ms were 'Just What the Doctor Ordered.' Lorillard Company -- Tobacco Company stressed its science-based Kent micronite filter (the original micronite filter was made of asbestos) and claimed it removed seven times more tar and nicotine than any other cigarette, which 'put Kent in a class all by itself where health protection is concerned.' Of course, we know today that not only were these claims patently false, but the cigarette companies knew it." Correct?

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A. I see that passage, and I disagree with a number of things in those passages.
Q. But at least that's what the doctors in the FTC reported in 1994; correct?
A. That is in the foreward of the 1994 NCI report.
Q. So in 1954 we had a Frank Statement, which yesterday you said was false.
A. Excuse me, I think we were focusing on one sentence there; weren't we?
Q. Okay. Well, the one sentence was false and that related to the cigarettes didn't create any health problem for people.
A. What I said was that that one sentence, I believe, couldn't be scientifically in a strict sense supported because scientifically you can't prove a negative.
Q. Then we went through a series of questions, sir, --
A. Yes.
Q. -- and you finally admitted it was false. But the record will speak for itself.
MR. WEBER: I object to counsel testifying, Your Honor.
THE COURT: The objection is sustained.
Q. And we saw in 1995 the AMA, in the Journal of the American Medical Association, said the companies engaged in deceit; correct, sir?
A. What we have in 1954, as we talked about yesterday, was the Frank Statement. We've discussed that line in there. The 1994 NCI conference on the FTC test method, you read two passages out there. I said I don't agree with all the things it said in there. And then in 1995 we talked about the JAMA article, Journal of the American Medical Association, where a group of physicians talked about deceit among other things, and I said I don't agree with some of the things in there.
Q. Now if we go back, then, sir, to the 1981 Surgeon General's report, and again paragraph -- or Roman numeral vi, the conclusions or basic findings of the report, the first one, "There is no safe cigarette and no safe level of consumption," do you remember that?
*24 A. I'm sorry, sir, I'm just trying to refresh my memory on this for a second.
Q. Sure. It's page five one, Roman numeral vi. Do you have it?
A. I -- I'm trying to refresh my memory on this document.
Q. Do you have that page, sir? Do you have that page?
A. I'm trying --
Q. Roman numeral five one.
A. I have Roman numeral vi in front of me.
Q. All right, thank you. Now --
A. I'm trying to refresh my memory on this document.
MR. CIRESI: Well Your Honor, may we proceed with the examination?
THE COURT: Proceed with your question.
Q. Sir, I want you to direct your attention to that page.
A. Okay.
Q. Are you there? Are you there, sir?
A. I'm on that page.
Q. Thank you.
Now number three, "It is not clear what reductions in risk may occur in the case of diseases other than lung cancer. The evidence in the case of cardiovascular disease is too limited to warrant a conclusion, nor is there enough information on which to base a judgment in the case of chronic obstructive lung disease." Correct?
A. That's what it says.
Q. And that was based on epidemiology that was available in 1981; correct?
A. This report is in 1981. I assume that the epidemiology that he's referring to is current.
Q. And in fact, it would have been a couple years before that, because the reports take a while to be issued; do they not?
A. Generally.
Q. Now the industry itself had not conducted any epidemiological studies to determine whether any of these cigarettes were safer in any way before they put them on the market as of 1981; had they?
A. I'm not aware of -- of any industry epidemiology studies. I don't know whether there has been some small ones or not, but I'm not aware of any, certainly, with my company. We have looked to empidemiologists outside the industry who have conducted massive studies. Some of these are referenced in the Surgeon General's report.
Q. Number four, "Carbon monoxide has been impugned as a harmful constituent of cigarette smoke. There is no evidence available, however, that permits a determination of changes in the risk of diseases due to variations in carbon monoxide levels." Do you see that?

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A. Yes.
Q. As of 1981, the industry -- strike "the industry."
RJR, as of 1981, had not conducted any such studies; had they? Epidemiological studies.
A. Oh, epidemiological studies.
Q. Yes.
A. I'm not aware of any epidemiology studies that R. J. Reynolds had conducted at that point.
Q. Are you aware of any epidemiological studies that any of the rest of the industry had conducted at that point?
A. I'm not aware of such studies. I don't know whether they occurred or not. You know, we have looked at epidemiology from experts outside the industry, no question about it.
Q. I was asking about whether you, who manufactured the cigarettes, had conducted any such studies. That's what I asked.
*25 A. And I answered that question.
Q. Number five, "Smokers may increase the number of cigarettes they smoke and inhale more deeply when they switch to lower yield cigarettes. Compensatory behavior may negate any advantage of the lower yield product or even increase the health risk." Do you see that?
A. That's what it says here.
Q. Now did Reynolds provide all of its internal documents regarding compensation to the Surgeon General's committee?
A. For this report?
Q. Yes.
A. I'm not aware of such a case. We were con -- conducting some research in the area of compensation. I think it was a developing area, certainly within R. J. Reynolds research and development. We were trying to understand compensation better than we did, so we were doing research in the time.
To -- to your specific question, I'm not aware that any of that information went to the Surgeon General for the preparation of the 1981 report.
Q. So the answer is no; correct?
A. I said I'm not aware whether any information went to the Surgeon General for the preparation of the 1981 report.
Q. Are you aware of whether any of the other industry companies submitted their internal information regarding compensation to the Surgeon General's committee?
A. I don't know.
Q. You don't know; correct?
A. I don't know.
Q. The next basic finding of the report, "The 'tar' and nicotine yields obtained by present testing methods do not correspond to the dosages that the individual smokers receive; in some cases they may seriously underestimate these dosages." Correct?
A. That's what it says.
Q. And the testing method being referred to there is the FTC testing method; correct?
A. That's my take on it. It does refer to the FTC test method for tar and nicotine, and then later for carbon monoxide.
I think everyone, including the FTC, recognized that the FTC test method was never intended to represent what any smoker gets, but it was to provide a comparative measure for smokers to make a choice in the marketplace.
Q. When did Reynolds tell the American public that the FTC method, which results in a nicotine and a tar number, is not intended to reflect what they would get? When did they tell the American public that?
A. I'm not aware that R. J. Reynolds told the American public that. The FTC commissioner did in 1967 or thereabouts when the method was established. Subsequent FTC commissioners also stated that.
Q. So that an individual smoker couldn't get that information from any product information that accompanied the cigarettes; correct?
A. I think that information had been presented by the FTC itself. I'm not aware, to your question, of any case where R. J. Reynolds or my competitors -- I don't -- I'm not sure about the competitors, but I'm not aware of any case where we've told consumers that what you get depends on how you smoke, that the FTC was in fact never intended to represent what a smoker gets. It's been clear from the Federal Trade Commission.
*26 Q. Do you supply with the cigarette packs or cartons the FTC findings on that?
A. We're required to provide FTC tar and nicotine in all advertising.

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Q. That's not what I asked you.
A. And we do that.
Q. That's not what I asked you.
MR. WEBER: Your Honor, the witness was -- the witness was answering the question and he was interrupted.
MR. CIRESI: Your Honor, I respectfully submit the witness is not answering that question.
THE COURT: Okay. Re-ask your question.
Q. Does RJR supply the FTC statement that you just said, that it's not intended to say what an individual smoker might get, does RJR provide that with any product?
A. On the product?
Q. Yes.
A. No.
THE COURT: Counsel, --
Q. Does --
THE COURT: -- I'm sorry, I think we should take a recess.
THE CLERK: Court stands in recess.
(Recess taken.)
THE CLERK: Please rise. Ramsey County District Court is again in session.
(Jury enters the courtroom.)
THE CLERK: Please be seated.
THE COURT: Counsel.
MR. CIRESI: Thank you, Your Honor.
BY MR. CIRESI:
Q. Doctor, can you go back to the Surgeon General's report, again, page Roman numeral vi. It should be right in front of you, sir.
A. Oh. Yes, it is, sorry. Roman numeral vi. I'm there.
Q. The seventh basic finding is, quote, "A final question is unresolved, whether the new cigarettes being produced today introduce new risks through their design, filtering mechanisms, tobacco ingredients, or additives. The chief concern is additives. The Public Health Service has been unable to assess the relative risk -- risks of cigarette additives because information was not available from manufacturers as to what these additives are." Do you see that, sir?
A. I see that statement, yes.
Q. Now as of 1981, low tar cigarettes had been on the market since the 1960s; correct?
A. That's correct.
Q. About 16 years; correct?
A. Generally that's reasonable, yes.
Q. During that period of time, Reynolds did not provide any information to any government agency regarding tests of its additives; did it?
A. At the -- at 1981?
Q. Yes.
A. Up to 1981?
Up to 1981, I believe no information about the additives were provided. But the CEO of Reynolds did offer that to Congress, as I stated in direct testimony, as long as the trade-secret protection was guaranteed. So there was a -- it was offered. But I don't believe, to your question specifically, that it was provided, because I don't think it was asked for.
Q. The additives themselves were not provided; were they, sir?
A. The identity of the additives, I think that's exactly what Bowman Gray was -- was offering to Congress.
Q. The tests, if any, that had been conducted on additives were not provided in '81; were they?
A. I don't believe so. But again, I think there was an offer to Congress to provide the identity, and probably along with that information.
*27 Q. When was that offer made?
A. In 1964 in congressional testimony by Bowman Gray, who was then the CEO of Reynolds.
Q. Did Reynolds from 1964 to 1981 fight disclosure of additives?
A. On a --
To protect trade secrets, certainly there were a number of discussions and probably even fights, because R. J. Reynolds wanted to protect the trade- secret nature. But Bowman Gray made it clear that he would provide the identity to Congress if they would guarantee him trade-secret protection.

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Q. Well one can offer to do something, if indeed one did offer to do something, and then fight about it for a long period of time; can't they?
A. I suppose that's possible, but that's not my sense of the situation.
Q. Indeed, it took an act of Congress to get information from the companies regarding additives; didn't it?
A. I don't remember whether it was an act of Congress. It may have been. Certainly in 1985 the industry did provide industry- wide disclosure of all the ingredients in a form that did protect each company's trade secrets or proprietary nature of those additives. I frankly don't recall whether it was an act of Congress. It may have been.
Q. The act of Congress was passed in October of 1984 and required disclosure within a year after that; did it not, sir?
A. I know that disclosure was required. I frankly don't -- didn't remember it was an act of Congress. That's all I'm saying.
Q. So you don't know what position Reynolds took from 1981 until Congress passed a law requiring disclosure; do you?
A. I know that Reynolds did take the position that it needed to protect its trade secrets on additives. I do know that there was an offer to disclose to Congress the nature of the additives we were using. Beyond that I don't know the details.
Q. You have no first-hand knowledge at all as to the details; do you, sir?
A. As to the details of what specifically?
Q. As to the details of what Reynolds did between 1981 and 1984, before Congress passed a bill requiring them to disclose additives on tobacco; do you?
A. I don't know the details of what happened between 1981 and 1984 on disclosure of additives. I do know that in 1985 or thereabouts we did disclose industry-wide lists of the additives on tobacco.
Q. You disclosed it through a law firm; correct?
A. That's correct.
Q. And you did not disclose the additives used in filters or in paper; did you?
A. I'm not sure that that's exactly right. I think the flavoring materials that were used on -- on filters, filter flavors, may have been included in that list, to the best of my knowledge. Again, I'm -- you know, that wasn't my job responsibility, but I think that's correct.
Q. So you're only speculating.
A. I'm speculating based on my recollection of some discussions.
Q. You said yesterday you weren't going to speculate; you remember that? Do you remember that, sir?
A. I vaguely remember saying that, yes.
*28 Q. Now can you turn to the next page of the Surgeon General's report, and do you see at the top there it talks about the additives and working out procedures so cigarette manufacturers can disclose while still protecting legitimate interests in trade secrets?
A. I'm sorry, what paragraph are you on?
Q. Very top of the page.
A. I see discussion along those lines, yes.
Q. And again, you do know that four years later an act of Congress was passed; correct? Excuse me, three years later.
A. I've already told you I didn't -- didn't remember it being an act of Congress. I just don't know. I do know that we disclosed in roughly 1985 a list of ingredients.
Q. Now can you go to the second full paragraph, and do you see the -- about a third from the bottom, "Further study is necessary...?"
A. I see that sentence, yes.
Q. "Further study is necessary to examine the addictive nature of smoking and its impact on initiation, maintenance, and cessation, especially in light of the recent statement of the National Drug Advisory Council -- Drug Abuse Advisory Council that cigarette smoking is addictive. These questions cannot be answered quickly or without expenditure of scientific resources." Do you see that?
A. I see those two sentences, sure.
Q. Now did you read this part of the report in 1981 when it came out?
A. My recollection is probably I did, yes.
Q. Did you recommend to Reynolds that it disclose to the government all of its internal documents with respect to what it knew about addiction?
A. No. That's not my area of research. My -- my area is cigarette design and product development.

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Q. Do you know if anyone at Reynolds suggested to management at Reynolds that it turn over to the government its internal knowledge and information with respect to what it knew about addiction of cigarette smoke?
A. I don't know.
Q. Do you know if anybody else in the industry turned over their internal documents regarding addiction?
A. I have no idea.
Q. You do know that those documents started coming out in 1994; don't you?
MR. WEBER: Objection, Your Honor, it's argumentative.
THE COURT: No, you may answer that.
A. I don't know the details of what you're suggesting there. I don't.
Q. Now can you go to the last paragraph on this page, Roman numeral vii -- excuse me, the last paragraph. "In the area of public information and education, much more needs to be done by the Government and by private health and educational agencies. The overriding objective must be to persuade young people not to take up smoking and to encourage present smokers to quit. Smokers of the lower yield cigarettes should be warned not to begin smoking more cigarettes or inhaling more deeply." Do you see that?
A. Yes.
Q. Did you read that portion of the Surgeon General's report in 1981?
A. I think in a general sense. I don't recall. I probably did.
Q. Did you suggest for Reynolds that they place a warning on their cigarette packaging or in their advertisements that lower yield cigarette smokers should not begin smoking more cigarettes or inhaling more deeply?
*29 A. Did I personally?
Q. Yes.
A. No.
Q. Did Reynolds ever put such a warning in any of its advertisements or on its packages?
A. Not that I know of.
Q. Not even up to today; correct, sir?
A. That's correct.
Q. Can you direct your attention now to page five of the 1981 Surgeon General report.
Now the last two paragraphs are directed toward lower tar cigarettes; are they not, sir?
A. In a general sense, that's correct.
Q. And did you read this portion of the 1981 Surgeon General report when it was issued?
A. I would assume so, yes.
Q. And those two paragraphs read as follows. "The technology of producing lower 'tar' cigarettes has progressed well beyond a simple reduction in the amount of tobacco in the cigarette or the removal of a portion of the 'tar' by filtration. Present technology has achieved 'tar' reduction by alterations in plant genetics, changes in the cultivation and processing of the tobacco leaf, and changes in cigarette paper and filtration of the cigarette."
Now sir, you would agree with that; would you not?
A. In a general sense, that's right.
Q. And RJR had a number of internal tests that it had conducted on those types of changes in plant genetics and tar reduction by alterations and cultivation and processing of the tobacco leaf?
A. Ah --
Q. If you know.
A. Yeah, at -- at the point in 1981, I'm -- I don't know how much research we had conducted in plant genetics. I know we've conducted some since then, we have an experimental farm, and scientists who are experts in genetics and agronomy who have studied that. At the point in 1981, I don't know what the extent was. Certainly we've looked at changes in cultivation and growing practices and tried to give farmers direction in how to -- to increase their yields, produce better tobacco and the like. And we've had extensive research in the area of processing of tobacco leaf, and we've touched on some of them, like reconstituted tobacco, expanded tobacco and -- and a variety of other processing techniques that we've looked at. So I would certainly agree with that. And changes in the cigarette paper and filtration of the cigarette to include air dilution, to include some -- the techniques that we talked about yesterday, and -- and actually others as well. So in general, yes.

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Q. And you had a lot of tests that you had conducted on, for example, the constituents that you used for expanded tobacco?
A. We've conducted -- we've conducted a lot of tests in a variety of areas. That's -- that's quite a general question.
Q. Well, you said that you used -- was it freon --
A. Freon.
Q. -- for expanded tobacco?
A. The first expansion process that we used used freon as an expansion agent or as a solvent, that's correct.
Q. Now I may have misunderstood or misheard you when you testified, but I think originally you said you stopped using that process in '88. And that was the day before yesterday. Do you remember that?
*30 A. The day before yesterday?
Q. Yes, I believe so.
A. Yeah. Yeah. I think Reynolds made a decision about that time to stop using it.
Q. But it continued to use it until 1993; didn't it?
A. We began intensive research to develop alternatives to the -- to the freon expansion. We looked at a number of alternatives, and over the next couple years began designing and building a very large plant using technology that we licensed from one of our competitors.
Q. I didn't ask you that, sir. It was a simple question. Did you continue to use it --
MR. WEBER: Object again to the commentary, Your Honor.
MR. CIRESI: Well Your Honor, I can move to strike the answer. I mean it -- it's a simple question.
MR. WEBER: Object to the additional commentary.
THE COURT: Just ask the question.
Q. Did you continue to use it until 1993, "yes" or "no?"
A. My understanding is that we shut down the freon plant in about 1993 and started up the DIET process expansion in -- the DIET expansion process in the same time.
Q. Okay. So in 1989 and '90 you were using millions of pounds of freon; correct?
A. It's a high-volume process. There's certainly a large amount of -- of freon used in it.
Q. Well if I tell you that in answers to interrogatories, which were provided under oath in this case by RJR, that in 1989 there were in excess of 58 million pounds of freon used, you wouldn't dispute that; would you?
MR. WEBER: Could I have a reference, Your Honor?
MR. CIRESI: Yes. Answer to interrogatories, supplemental response dated February 14th, 1997.
MR. WEBER: Was that on the designation list?
MR. CIRESI: Yes, Exhibit 4915.
MR. WEBER: Thank you.
BY MR. CIRESI:
Q. Would you accept that, sir?
A. Well it -- it's a large-volume process. It would require a lot of freon to operate that large-volume process. I don't know the numbers of usage off the top of my head. I have no reason to doubt it, frankly.
Q. All right. Well we'll just put it up, I think that's probably a quicker way.
Here's the answer to interrogatory, sir. And if we go down to 1988 -- if you can move it up a little -- and in '88, 63,594,951 pounds of freon were used; correct?
A. That's what is said.
MR. WEBER: Objection, Your Honor.
A. And as I said --
MR. WEBER: Objection, Your Honor, the response says pounds of processed tobacco, if you read the introduction of this response which was just on the screen.
Q. Well that's --
G13 is with freon; correct?
A. G13 is tobacco that's been expanded by freon.
Q. Okay. And in 1988 there were 63,594,951 pounds of that tobacco; correct?
A. That's what it says.
Q. And in 1989 there were in excess of 58 million; correct?
A. Well 58,744,000 pounds.
Q. And in 1990, in excess of 58 million again; correct?
A. That's correct.

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Q. In 1991, in excess of 36 million pounds; correct?
A. That's correct. And that may have been the time the first startup of the plant, before it achieved full production.
*31 Q. And then it went up again in 1992 to 53 million; correct?
A. That's what it says.
Q. And that's after your startup of production for the next commodity you were going to use to expand; correct?
A. Well again, I don't know. I'm -- you know, I know that it takes time to start up a new process of this size. I don't know exactly when the trial runs and startup was.
Q. And then in 1993, 20 million.
A. Yes.
Q. Almost 21 million; correct?
A. That's what it says, yes.
Q. Now did RJR, to your knowledge, do any long-term studies to determine the effect of freon on human beings?
A. There were a number of studies that Reynolds conducted, including major chemistry evaluations of products with and without freon expanded tobacco, thorough chemical investigations. There were some biological tests done, largely through outside contract research groups where I believe skin-painting was included, as well as a number of other biological assays. Quite a lot of biology.
Q. Were any long-term studies done to determine the effect of freon on human beings by Reynolds?
A. If you define "long-term studies" being skin-painting, I believe then the answer would be yes.
Q. Skin-painting is not a long-term study, it's a short animal study; isn't it, sir?
A. Well it's long term compared to other -- see, it's long term compared to some other biological assays that can be done very quickly.
Q. How long does it take --
A. It's -- it's a matter of definition.
Q. How long does it take to do a skin-painting test?
A. Months.
Q. Months. Okay.
Now if I defined a long-term epidemiological study to determine freon effect on human beings, did you do any such study?
A. You mean like a 20- or 30-year epidemiological study?
Q. A five-year epidemiological study.
A. I don't know that one can do a five-year epidemiological study. I'm just not an expert in that area.
Q. It would be --
A. I don't know. I have never heard of one.
Q. It would be unethical to submit human beings to freon to see what would happen to them; wouldn't it?
A. My personal opinion is when one has a test product, yeah, it would be unethical to submit humans to the evaluation of -- of new materials that haven't been tested.
Q. And you talked about a decomposition product of freon; didn't you?
A. Yes. Scientists at Reynolds suspected there might be a decomposition product in the use of freon, and they examined the smoke for the presence of that compound intensively.
Q. (Writing formula on board) Is that the product?
A. That's the decomposition product that we looked for. It's called phosgene.
Q. Phosgene, isn't it?
A. Yes.
Q. That's the nerve gas used in World War I; isn't it?
A. Phosgene has been considered as a -- as a weapon.
Q. A weapon.
And did some of your competitors analyze and look at whether or not freon might present a risk of harm to smokers?
*32 A. I'm aware that --
Well as I said the other day, not only did we evaluate the chemistry intensively, and especially looked for the presence of phosgene intensively, we conducted biological studies on freon expanded tobacco. We collected the -- all that information together and presented it to a variety of people, including our -- many of our competitors, because some of our competitors were interested in licensing that process from us.

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We provided that information to them. They evaluated that. In some cases would take that information to government bodies like the -- the Hunter Committee in England for their evaluation. Our competitors did evaluate all of our information --
Q. I didn't ask you --
A. -- to the extent that they may have --
I'm trying to answer your question, sir.
Q. Well, sir, I didn't ask you about the Hunter Committee. I asked you a simple question.
MR. WEBER: Object, he was trying to finish his answer, Your Honor. Counsel should wait until it's done.
THE COURT: Well at some point in time I think we have to get into the answer to the question that's been asked.
THE WITNESS: I was -- I was exactly there, Your Honor. I'm sorry.
Q. It's a very simple question. A "yes" or "no," doctor. Did some of your competitors evaluate freon? "Yes" or "no?"
A. Some of our competitors evaluated the freon process, they evaluated chemistry and biology, and a few of them may have done their own studies.
Q. Can you direct your attention to Exhibit 11224. It is in volume one. I believe it's behind you, sir. 11224.
I'm sorry, 11244. 11244.
A. Okay, 11244.
Q. Do you have it, sir?
A. Yes.
Q. Okay. This is a B.A.T document dated March 15th, 1984; correct?
A. It is March 1984.
Q. Upper right-hand corner.
A. It says -- it says B.A.T. Company Ltd.
MR. CIRESI: Okay. Your Honor, we'd offer Exhibit 11244.
MR. WEBER: No objection, Your Honor.
THE COURT: Court will receive 11244.
BY MR. CIRESI:
Q. Now did Brown & Williamson and B.A.T use your G13, which was your freon expanded tobacco?
A. You mean did they use it commercially?
Q. Yes.
A. I don't remember.
Q. You don't remember. Okay.
Now G13 was what your freon expanded tobacco process was; correct?
A. Yes. That's our internal code for freon expanded tobacco, G13.
Q. And you see here that this is a "REVIEW OF FREON 11 IN TOBACCO PROCESSING?"
A. That's the title of this document.
Q. And Freon 11 is the type of freon that Reynolds used in its expanded tobacco process; correct?
A. That's correct.
Q. And do you see at number three there's a report here that says, "The use of G13 treated tobacco in cigarettes: (a) toxicology and (b) residual levels achieved in practice?"
A. Yes. It says "residue," not "residual." You're correct other than that.
Q. "Residue." I'm sorry. Thank you.
And G13, as you said, was your internal code for this; correct?
*33 A. That's correct.
Q. And if you could turn, sir, then, to the page which has at the top number four, which is the "TOXICOLOGY IN RELATION TO PROCESS RESIDUES IN CIGARETTES (Freon 11)." Do you see that?
A. Yes.
Q. Have you read this document before?
A. I scanned it quickly because you produced -- you designated it as a document for my cross-examination.
Q. Okay. Is that the first time you saw this document?
A. Yes.
Q. Paragraph one says, "Two prime sources have been used in this review, which has been restricted primarily to human data and to specific relevant aspects of the animal data. These are (a) Confidential report which Alan Rodgman of R. J. Reynolds and (b) a review from BIBRA. (Received February 1983)." Do you see that?

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A. Yes.
Q. Now Dr. Alan Rodgman is from R. J. Reynolds; correct?
A. That's correct.
Q. And this document, then, goes on to look at and analyze both Dr. Rodgman's report and the review by BIBRA of Freon 11; doesn't it?
A. This appears to summarize a lot of the information, yes.
Q. Okay. And the first paragraph under what I just read states as follows: "The report and the review indicate, with a reasonable degree of confidence, that there is no definitive evidence which would suggest that Freon 11 is carcinogenic, via the oral or inhalation routes of administration." Correct?
A. That's what it says, that's correct.
Q. Then it goes on to state, "The mutagenic studies are also negative or equivocal" -- What does "equivocal" mean?
A. Neither increased nor decreased.
Q. Well they're also negative or equivocal, so you think equivocal means either increase or decrease?
A. Or uncertain.
Q. Uncertain. Isn't that what it means?
Pardon me?
A. Yes.
Q. That's what it means?
A. Well that -- that was one interpretation, yes.
Q. -- "and a single reproduction -- reproduction study indicated that there were no significant effects;" correct?
A. That's what it says, that's correct.
Q. Then he goes on to state, "The position is rather different, however, in relation to effects on the respiratory system and heart." Correct?
A. That's what it says.
Q. Now with regard to the carcinogenic activity and whether it's equivocal and no significant effects --
You don't, I take it, know what he means by "significant effects," as to how many people that might affect --
A. I would take this to mean no statistically significant effects in the mutagenicity studies that he's referring to.
Q. All right. And statistical significance in the parlance of empidemiologists would be 95 percent certainty; correct?
A. Well empidemiologists use different -- different measures depending on what they're doing, I think.
Q. That would be --
A. I don't -- I don't know what the confidence level was of the researchers that concluded this.
Q. But if you use a confidence level of 95 percent, you're saying that there's only a five percent chance that the relationship happened by chance; isn't that right?
*34 A. Generally that's -- that's a reasonable explanation of it.
Q. So by looking at this, if it's statistically significant, we don't know what the percentage was that something may be carcinogenic; do we?
A. He's referring to mutagenic tests.
Q. Well --
A. Something like the Ames test. Mutagenicity.
Q. A mutagen can affect the genes; right?
A. Well it is mutation of genes, that's the measure. It's not carcinogenicity, though, it's mutagenicity.
Q. Well the mutation of genes has a role in the development of cancer; doesn't it, sir? If you know.
A. I don't know what the role of mutagenicity is in the formation of tumors or cancer, and I'm not sure anyone does.
MR. CIRESI: Well, move to strike the last portion, Your Honor.
THE COURT: The last portion will be stricken.
MR. WEBER: Just for the record, I'd object to that, Your Honor. He asked him the question what he knew, and the doctor said -- gave his opinion.
THE COURT: He said he didn't know, and then he added something which did not justify his not knowing.
BY MR. CIRESI:

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Q. Now the Ames test, that was a test developed by Bruce Ames from, I think, the University of California at Berkeley; correct, sir?
A. It was Bruce Ames' test.
Q. Now if we go on to the respiratory system and heart, it's reported here that "In the animal studies, for example, exposure by the oral and inhalation routes appears to present no particular problems until equivocal results are noted in relation to the neuronal oedema, emphysema and lung oedema." Do you see that?
A. I see where it says that.
Q. Now lung edema and emphysema and neuronal edema, does that refer to chronic obstructive pulmonary disease?
A. I'm not an expert in this area. I think superficially I would agree with that.
Q. And "Pulmonary irritation, congestion and hemorrhage have also been reported following short (two to 24 hour) exposures to high levels of Freon 11." Do you see that?
A. I see where it says that.
Q. And that would refer to chronic obstructive pulmonary disease too; wouldn't it?
A. Well it says specifically pulmonary irritation, congestion and hemorrhage. I don't know what that means.
Q. All right. You don't know if that has a relationship to chronic obstructive pulmonary disease; --
A. That's correct.
Q. -- fair enough?
A. That's correct.
Q. All right. "It is also noted that these effects vary widely between species. Similarly, species dependent, effects on heart rate, hypotension and cardiac arrythmia have been reported in relation to the cardiovascular system." Do you see that?
A. You read that correctly.
Q. Now, was Reynolds aware of this with regard to Freon 11?
A. I don't know what this is referring to and to what studies. I'm certainly not an expert in this area. I do know that Reynolds looked at it very carefully, drew conclusions, and I know that they presented that to the Hunter Committee in the U.K. and other scientists who saw no problems in it at the levels of freon that are residual in the tobacco.
*35 Q. I didn't ask you who they presented it to. Now I asked you a very simple question. Was Reynolds aware of what we just read, if you know?
A. I don't know whether Reynolds was aware of this paragraph in this document or the information contained in it. I don't know.
Q. Isn't it a fact that from this document we can see that this came from the confidential report by Alan Rodgman and a review from BIBRA?
A. This reference -- this entire page after number three references Dr. Rodgman and BIBRA. I don't -- I've read some of Dr. Rodgman's information on G13, and I've never seen this information in this paragraph that you're focused on in Dr. Rodgman's, so my assumption is it may have came from BIBRA. I don't know.
Q. Well let's read the next paragraph.
A. Okay.
Q. "Although these aspects are reviewed in some detail by Rodgman, they are eventually dismissed in relation to the levels of exposure from cigarettes containing G13 expanded tobacco." Correct?
A. That's what it says. And again, I don't remember that paragraph above there talking about respiratory -- or pulmonary issues in Dr. Rodgman's report. My suspicion is that it comes from BIBRA, perhaps. And I think the paragraph that you just referred to, "Although these aspects," probably refers to all the paragraphs above that. That would be my take on that.
Q. Oh. All the paragraphs include the one immediately preceding, which this scientist says was reviewed in some detail by Rodgman; correct?
A. That's correct. And I've just told you how I would interpret this memo or this -- this page based on the flow of information here.
Q. And Dr. Rodgman should point out everything to a competitor who is using freon in expanded tobacco being inhaled by consumers; shouldn't?
A. I think if we are presenting scientific data on the G13 process, we present everything we know.
Q. Okay. Let's read the next paragraph. "It is notable that Rodgman draws attention to an excellent review by Charlesworth." That's number one. That's reference number one; correct?

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A. That's correct.
Q. And that was an article in Food and Cosmetics Toxicology in 1975; correct?
A. I'll have to go back to the references if you like.
Charlesworth, Food and Cosmetics Toxicology, 1975.
Q. Go back then. "Nevertheless, he fails to point out, as Charlesworth does, that the authors 'consider the use of Freon F11 and Freon F21 as aerosol propellants inadmissible...because they are more potent than other fluorocarbons in inducing cardiac arrythmia in the mouse."' Do you see that?
A. I see where it says that.
Q. What is cardiac arrythmia, if you know?
A. I -- I --
Well I'm not entirely certain, so I won't say, because I don't know.
Q. It's an irregular heart beat; isn't it?
A. That's what I would have said.
Q. Can lead to a heart attack; can't it?
A. I don't know to what extent that can happen.
Q. "Similarly Charlesworth commented that 'F11 increased pulmonary resistance and decreased pulmonary compliance and tidal volume in the rat.' Both of these concentrations were found at significantly lower concentrations." Do you see that?
*36 A. I see where it says that.
Q. Goes on to state, "Rodgman also refers directly to a paper by Belaj, et al, stating that the threshold for arrythmia in the monkey was five percent Freon 11. Although this statement is correct, no mention is made that there was a dose- related fall in blood pressure and depressed myocardial contractability at .05 percent, while heart rate acceleration was also demonstrated but was not dose-related." Do you see that?
A. I see that.
Q. So it's being reported --
THE COURT: Counsel, counsel, I think you need to reread that, please. It's not .05 percent.
MR. CIRESI: 0.5 percent.
THE COURT: Thank you.
MR. CIRESI: Thank you, Your Honor.
Q. Is that correct, sir?
A. It says 0.5 percent in this paragraph.
Q. And is that a half of one percent?
A. It's a half of one percent, or five thousand parts per million.
Q. Five thousand parts per million.
A. Yes.
Q. "Aviado and Belaj draw the conclusion that 'the continued use of class 1 propellants (including F11) in aerosols should be seriously questioned."' Do you see that?
A. Yes, I do.
Q. Now smoke is an aerosol; isn't it?
A. Smoke is an aerosol in that it contains a particulate phase and a gas phase.
Q. And then it talks about "Human Studies;" correct?
A. That's the next section.
Q. "In addition to these effects noted in the animal studies, it is considered that the respiratory and cardiovascular evidence from humans gives rise for considerable concern, although this is not reflected strongly in the BIBRA review." Do you see that?
A. I see where it says that.
Q. And then it goes on, "For example, on page 9, the reviewer states that no serious effects were seen on the EEG of 10 subjects exposed to TCFM" --
And do you know what that is?
A. No.
Q. -- "for 15 or 45 seconds. Nevertheless, the reviewer notes 'most of the subjects developed respiratory sinus arrythmia and bradycardia and each exhibited a biphasic reduction in maximum expiratory flow rate. Following a 60 second exposure there was a transitory tachycardia with negative T waves in 2 of the subjects."' .
And these are human studies; correct, sir?
A. It doesn't explicitly say that.
Q. Well it's under the title "Human Studies." Do you see that?
A. Yes.
Q. And this is referring to effects on the respiratory and heart; isn't it?

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A. I think that's a reasonable conclusion.
Q. And Reynolds was aware of this when it was using freon; wasn't it?
A. I don't know.
Q. Well didn't you look at the tests and knowledge that Reynolds had before you came in to testify that you've done this expanded tobacco, other things, and there were tests done, didn't you look at the tests?
A. I've looked at -- at quite a bit of information on G13, both the chemistry and -- and some of the biology that Reynolds has generated. And exposure levels in biological tests that Reynolds conducted or contractors for Reynolds conducted are -- are much, much, much lower than the levels that we referred to in the upper studies. We're talking about 5,000 parts per million; the residual levels in freon are extremely low, much -- much lower than that.
*37 Q. You didn't introduce any of those studies here; did you?
A. I beg your pardon?
Q. You didn't introduce any of those studies here; did you?
A. The chemistry and biology?
Q. Yes.
A. No.
Q. Not a one; did you?
A. No.
Q. You didn't introduce Dr. Rodgman's test; did you?
A. We didn't introduce any of the chemistry or biology associated with G13.
Q. Can you go on to the next page. This continues to review the literature on freon; doesn't it, sir?
A. It appears to, yes.
Q. And it's talking about human studies in that section; correct?
A. I believe we're still in the "Human Study" section, yes.
Q. And do you see down in subparagraph (c) that it states, "The work of Valic also demonstrates that the effects of Freons can be sinogistic (F11 and F12). On this basis the possibility of synergistic effects of F11 and tobacco smoke cannot be overlooked." Do you see that?
A. I see where it says that.
Q. Now the studies that you did on freon, RJR, that you're aware of, did not deal with it in its synergism with cigarette smoke; did it?
A. The biological -- biological studies that I can recall in fact looked at freon present in tobacco smoke for those assays.
Q. Now I'm talking about the synergism of tobacco smoke and freon, to ascertain what effect, if any, over time they have on human beings.
A. Well it seems to me if freon is present in tobacco smoke, if there's any synergistic effects, they would be operative in the experiment when you do the biology with freon in tobacco smoke.
Q. Did you do those studies?
A. No. I've already said I'm not a biologist.
Q. Do you know what the protocols of those studies were?
A. I said I'm not a biologist. No.
Q. Do you know if human beings were used in those studies?
A. I've seen animal studies and -- and in vitro studies.
Q. In vivo is human being studies. Did you see any human being studies?
A. I don't remember seeing any.
Q. Now some conclusions are drawn; correct?
A. There's a conclusion section.
Q. "Whilst there are no grounds for refuting the review and appraisal made by BIBRA, it is apparent -- it is apparent that it was prepared as a balanced appraisal in relation to the industrial use of Freon, particularly at levels up to the threshold limit value." Correct?
A. That's what it says.
Q. If we go on to the next page, "In contrast BAT is concerned with the use of Freon in a tobacco expansion process and the subsequent use of the processed tobacco in cigarettes." Correct?
A. That's what it says.
Q. "It is submitted that our prime need is to consider the possible effects in circumstances where:"
Number one, "Large numbers of subjects are exposed;" correct?

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A. That's what it says.
Q. That's what happens when people smoke. Large numbers are exposed; aren't they, sir?
A. I think that's fair.
Q. "(b) The exposure is to low residual levels but is frequently repeated." Do you see that?
*38 A. Yes.
Q. And smokers frequently ingest smoke; don't they?
A. They inhale smoke.
Q. Inhale, excuse me. Isn't that correct?
A. Smokers inhale smoke.
Q. Frequently; correct?
A. Sometimes. Often.
Q. Daily; correct?
A. Most smokers do.
Q. Monthly and yearly; correct?
A. Most smokers I would suppose.
Q. Over decades; correct?
A. Some smokers.
Q. "(c) Those exposed are people of all ages (16 upwards), in all states of health, which will certainly include those with pre-existing pulmonary and heart disease of any etiology." Correct?
A. That's what it says.
Q. Now, when you're talking about people of varying health and of all ages, we're talking about the environment of use into which it is intended that a product goes; aren't we?
A. I suppose that's one definition. We talked about various definitions.
Q. "(d) The exposure to Freon is coupled with simultaneous exposure to a wide -- very wide range of other chemicals which exist, mostly at very or extremely low levels, in cigarette smoke." Correct?
A. Yes.
Q. And sir, there are thousands of chemicals in cigarette smoke; correct?
A. There are thousands of chemicals in cigarette smoke present at extremely, extremely low levels.
Q. You at RJR don't even know what thousands of those chemicals are; do you?
A. I beg your pardon?
Q. You don't even know what those chemicals are; do you?
A. Oh, we know what many of the chemicals in the smoke or the constituents in smoke are. I've already testified that we certainly don't know all of the constituents in smoke, but we've worked hard to characterize cigarette smoke as thoroughly as -- as we can.
Q. There's --
A. We've made a lot of progress.
Q. There's thousands of constituents of smoke that you don't even know what they are; do you?
MR. WEBER: Let me object, how --
A question that says there are thousands of things you don't know about, it's nonsensical.
THE COURT: No, that wasn't the question. He may answer the question.
A. I've already made it clear that we've identified upwards of 4,800 constituents in smoke. I've also made it clear in earlier testimony here in my direct examination that there are certainly many, many more that we haven't yet identified. There's no question about that.
Q. Thousands; correct?
A. Depends on how sensitive the analytical techniques are.
Q. And --
A. As one develops more sensitive techniques, one can see more constituents present at even lower and lower levels.
Q. And when has Reynolds warned the consuming public in its advertisements, on its labels, or anywhere, that there are thousands of constituents in this product, we don't even know what they are? When has it done that?
A. Well you're assuming that there's thousands of unidentified compounds. That may be right, that may be -- may not be right; again, it depends on how sensitive your analytical techniques are.

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*39 Q. That's not what I asked you. When did you warn about that?
A. I know, but -- I know, but I'm just addressing the assumption underneath your question.
Now your question is when did Reynolds warn the consumer --
Q. Yes.
A. -- about the presence of smoke constituents?
Q. No, about the fact that you don't know what's in your smoke. When have you warned them, in ads or on the label or in anything that accompanies the product?
A. Well Mr. Ciresi, I take great offense at the suggestion that we don't know what's in cigarette smoke. I've tried to testify here before this court and this jury that we've done extensive research over a long period of time to try to identify the constituents in smoke, and we've identified more than 4800 constituents, and we've sought ways to selectively reduce those constituents, and we've sought ways to reduce all the constituents through general reduction, and we've spent an extreme amount of scientific effort to try to do exactly what you're suggesting we haven't done, is characterize the smoke.
Are we finished characterizing the smoke? Certainly not.
Q. That's not my question.
A. There are certainly --
Q. Sir, that is not my question.
A. I was just about --
Q. In at least --
A. -- finished with my answer.
Q. No, I want to ask my question here. And see if you can answer my question.
A. I thought I was, sir.
Q. Well you weren't. And here's the question.
MR. WEBER: Let me object to the commentary again, Your Honor.
MR. CIRESI: Well I apologize for the commentary, Your Honor, and I will withdraw the commentary.
THE COURT: Okay, please try to listen to the question and answer the question, if you will.
THE WITNESS: Yes, Your Honor. I'm -- I'm trying.
BY MR. CIRESI:
Q. Question is very simple, sir: When did Reynolds warn people that it didn't know all of the constituents that may number thousands that's in cigarette smoke? When?
A. I'm not aware my company, R. J. Reynolds, has ever warned consumers that there are constituents in smoke that we have yet to identify.
Q. And you don't know whether those constituents are carcinogenic or not since you don't even know what they are; isn't that right?
A. Well if one doesn't know the existence of certain constituents as yet in smoke, then you don't know what -- obviously what molecule it is, you wouldn't know whether they're carcinogenic at some particular level in some type of experiment.
Q. But if one wanted to read all the medical literature, we do know what disease is caused by smoking; don't we?
A. Again, I don't believe that it's scientifically demonstrated that smoking causes those diseases. Cigarette smoking clearly is a risk for a number of diseases, including lung cancer and others. Cigarette smokers as a group have a higher incidence of lung cancer, emphysema, cardiovascular disease, no question about it, but what's not scientifically demonstrated is that cigarette smoking in itself and by itself causes that disease.
*40 Q. Now in B.A.T's document, they go on to state their summary conclusions down at the bottom; don't they, sir?
A. There's a paragraph "In summary...."
Q. Okay. "In summary therefore, it is contended that prime consideration must be given to:
"(1) the particular circumstances of the cigarette industry and the attacks which are made against it." Correct?
A. That's what it says. I don't understand that, but -- okay.
Q. "the human data reported by Valic on healthy subjects which is supported and amplified by the animal data." Correct?
A. That's what it says.
Q. And when scientists look at whether a constituent or compound may cause injury, they look at animal data, and if they have human data, they certainly look at that; don't they, sir?

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A. Yes.
Q. And over on the next page it says, "Conversely, the data related to industrial exposure of identified, relatively small numbers of 'healthy' subjects is regarded as less relevant." Correct?
A. That's what it says.
Q. Then it states, "On the basis of the evidence, it is recommended that the use of Freon 11 in tobacco products should be phased out as quickly as practicable." Correct?
A. That's what it says.
Q. "Given a satisfactory alternative, I would recommend that Freon 11 should not be regarded as an acceptable process residue." Correct?
A. That seems to be what this author is saying.
Q. And a process residue is something that remains in the product after the product is processed and is ready to go for use in the environment of use by the consumer; correct?
A. That's the way I would interpret that.
Q. Now this was in 1984; correct?
A. That's correct.
Q. And Reynolds continued to use this product for another nine years; correct?
A. That's probably approximately correct.
Q. And then you went to propane for expanded tobacco; didn't you?
A. No. In the United States, that's not correct.
Q. Did you use propane?
A. Not in the United States.
Q. Not in the United States. Okay.
So you only went to CO2 after that.
A. We went to a DIET process, so-called DIET process, which uses carbon dioxide. It's a process that we licensed from one of our competitors.
Q. How many millions, billions of cigarettes were sold with freon in it, sir?
A. I don't know.
Q. How many years, again, was freon used?
A. I believe it was first commercialized right around 1970.
Q. And as we saw, it was used --
A. And dis --
Q. -- until 1993; right?
A. And discontinued in the early '90s.
Q. So for 23 years freon was used; correct?
A. That's a reasonable time period that we used freon as an expansion agent for expanded tobacco. No question.
Q. And during that period of time did Reynolds sell billions of cigarettes every single year?
A. I think that's fair.
Q. Now if you could go back to the '81 Surgeon General report, Exhibit 3838, and you'll recall we were at the bottom of page five, we were talking about low tar and filtered cigarettes, of which the expansion process was used in those cigarettes; correct, sir?
*41 A. Okay. I'm at the bottom of page five.
Q. And in the low tar/low nicotine cigarette, the expanded tobacco was used; isn't that right?
A. Are you reading from the text?
Q. No, I'm asking you a question.
A. Oh. You were referring me to the bottom of that page. I was looking for the text.
Q. All right. Fair enough.
A. I'm sorry, the question is --
Q. The expanded process was used in the low tar/low nicotine cigarettes; correct?
A. Expanded tobacco certainly is a major tool in developing low tar products.
Q. Now at the bottom, then, of this page five, it states, "The methods used in testing cigarettes by machine may not correspond to the way persons actually smoke. There is evidence to suggest that the cigarette yields measured by machine are very different from the yields that the consumer actually obtains by smoking the cigarette, due in part to the difference in patterns of smoking between testing machines and individual smokers. Therefore, 'tar' measurements of current cigarettes may not reflect the same estimate of risk provided by the 'tar' measurement of cigarettes manufactured at the time of the 1966 Public Health Service Review." Do you see that?

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A. Yes.
Q. Now it was in 1966 that the Public Health Service stated that low tar cigarettes may be less hazardous; isn't it?
A. Yes. My recollection is the 1966 Public Health Service Review did in fact suggest that lower tar cigarettes would result in reduced risk.
Q. And it was thought that because of the dose exposure.
A. Well it was thought, in my understanding, because they believed, and I think many, many others believed and still believe, that there's a dose/response relationship between tar exposure and disease.
Q. But the epidemiology doesn't show that today; does it, sir?
A. A dose/response ratio --
Q. Yes.
A. -- relationship?
Q. Yes.
A. What epidemiology are you referring to?
Q. I'm referring to the totality of the epidemiological evidence which is in existence as of today. Doesn't show that; does it?
A. Well that's a very broad statement, "the totality of epidemiology." I think there's different people that maybe have concluded different things. Clearly I think some -- probably most scientists agree that -- that there is a reduced risk of non -- of filtered versus non-filtered products. I think there's a debate about the degree of risk reduction among filtered products.
And as I said earlier this morning, I think even Dr. Samet in 1994 agreed that probably lower tar cigarettes, filtered cigarettes in the lower -- in the lower exposure probably reduces the risk.
Q. He said that was only for lung cancer based on the CPS-I study, a snapshot in time; correct, sir?
MR. WEBER: Let me object. Could we have a citation to that, or was -- the document?
Q. Are you aware of that, sir?
THE COURT: There was not -- I think he was referring to the testimony of Mr. Samet, --
*42 MR. CIRESI: That's right.
THE COURT: -- which I believe is an accurate reference.
Q. Isn't that right, sir?
A. I think Dr. Samet was referring to lung cancer as -- as was the empidemiologists who were comparing filtered versus non- filtered cigarettes.
Q. Right. And that referred to the CPS-I study, which did a snapshot in time; correct?
A. The CPS-I study was a snapshot over a period of time with a certain group of subjects.
Q. Now with regard to all of the other diseases, there's no epidemiology that shows low tar/low nicotine cigarettes are less harmful; is there?
A. I'm not sure which other diseases you're talking about. I'm certainly not an epidemiologist. I would agree that -- that empidemiologists have concluded that the studies conducted so far show no change for certain diseases.
Q. And in 1981, the Surgeon General's report on page six pointed out, "Another closely related concern about lower 'tar' and nicotine cigarettes is the use of flavorings and other chemical additives. In order to enhance consumer acceptability, flavoring substances are added to cigarettes; it may be that the lower the 'tar' yield, the more flavoring additives are used. It is impossible to make an assessment of the risks of these additives, as cigarette manufacturers are not required to reveal what additives they use. No agency of the federal government currently exercises oversight or regulatory authority in the manufacture of cigarette products." Did I read that correctly?
A. You read that accurately.
Q. "Further, no agency is empowered to require public or confidential exposure -- disclosure of the additives actually used by the cigarette manufacturers;" correct?
A. That's what it says.
Q. And it wasn't until information started coming out in 1994 that the FDA initiated proceedings to regulate cigarettes as a nicotine-delivery device; isn't that right, sir?
A. If you're suggesting that the information only became available in 1994 which prompted the FDA to take the stand that it took, I don't think that's completely accurate because the industry was providing quite a lot of information to the Department of Health and Human Services on additives. We've already talked about that. In 1994 the industry also publicly disclosed all of the additives that it uses in

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commercial products.
Q. It was in 1994, after the documents started coming out, that the FDA commenced its investigation into regulating cigarettes as a drug-delivery device; isn't that right?
A. Which documents are you referring to?
Q. I'm referring to the documents that came out in the Waxman Committee. I'm referring to documents that were produced in this case.
A. I don't know to what extent the different events prompted the FDA to do what it's done.
Q. Have you read --
A. I don't know.
Q. -- Mr. Bible's testimony in this case with regard to the FDA's findings?
A. I don't think I read any of Mr. Bible's testimony.
*43 MR. CIRESI: Your Honor, that might be a good place to break for lunch.
THE COURT: All right. We'll take a recess for lunch, reconvene at 2:00 o'clock.
THE CLERK: Court stands in recess until 2:00 o'clock.
(Recess taken.)

*1 TITLE: STATE OF MINNESOTA AND BLUE CROSS AND BLUE SHIELD OF MINNESOTA, PLAINTIFFS, V. PHILIP MORRIS, INC., ET. AL., DEFENDANTS.
TOPIC: TRIAL TRANSCRIPT
TRANSCRIPT OF PROCEEDINGS
DOCKET-NUMBER: C1-94-8565
VENUE: Minnesota District Court, Second Judicial District, Ramsey County.
YEAR: April 1, 1998
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JUDGE: Hon. Judge Kenneth J. Fitzpatrick, Chief Judge
AFTERNOON SESSION.
THE CLERK: All rise. Court is again in session.
(Jury enters the courtroom.)
THE CLERK: Please be seated.
THE COURT: Counsel.
MR. CIRESI: Thank you, Your Honor.
BY MR. CIRESI:
Q. Doctor, if you can turn your attention again to the 1981 Surgeon General's report, "The Changing Cigarette."
A. Okay.
Q. And if you turn to the page that has number six in the lower left-hand corner. You'll recall that's where we were when we broke.
A. Okay.
Q. Do you recall I was asking you a series of questions with regard to whether -- to the statement, "Further, no agency is empowered to require a public or confidential disclosure of the additives actually in use by the cigarette manufacturers?" Do you see that?
A. I remember that.
Q. Okay. Now if you can turn over to the next page then, please, page seven, and at the bottom there is stated as following, right at the very bottom, "As discussed in this Report...," do you see that point, doctor?
A. Yes. Four lines up.
Q. "As discussed in this Report, the recent reductions in 'tar' yield have been accomplished by altering tobacco growth and processing and by changes in cigarette manufacture. These changes may have produced a 'tar' with a different composition from that of old higher 'tar' cigarettes, and may have changed the concentrations of some of the constituents contained in the gas phase of the smoke.
"An additional concern is that the production of cigarettes with lower 'tar' and nicotine yields may involve the increasing use of additives for tobacco processing or flavoring. Some additives available for use are either known or suspect carcinogens or give rise to carcinogenic substances when burned. The use of these additives may negate beneficial effects of the reduction of 'tar' yield, or might pose increased or new and different disease risks. Therefore, the 'tar' yield of cigarettes currently being manufactured probably cannot be used as a precise measure of current smoke exposure risk, nor be compared quantitatively with the smoke exposure risk of the old higher 'tar' cigarettes. The major prospective studies that provide the data for our assessment of smoking-related health risks examined persons who smoked these older, higher 'tar' cigarettes."

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*2 Now sir, in 1981 did you read that portion of the 1981 Surgeon General's report?
A. I feel like I probably did, certainly.
Q. Okay. Do you know if others at Reynolds read that portion of the 1981 Surgeon General report?
A. Oh, my speculation is that probably a number of people at Reynolds read that passage.
Q. Did any of the advertising or marketing information of Reynolds in 1981 or subsequent years contain this type of information for dissemination to the consumer?
MR. WEBER: Objection, Your Honor, advertising was not permitted as part of the direct examination, advertising and marketing.
THE COURT: Well you can just answer that if you know of your own knowledge.
A. Not that I'm aware of. A lot of the information or -- or what's in these two paragraphs that you read is -- is pretty speculative, and the fact is that we did evaluate additives and do a number of things that's questioned in here. But I'm not aware of -- of that event that you're suggesting.
MR. CIRESI: I move to strike everything starting with "A lot of...."
THE COURT: Okay, that answer will be stricken.
Please listen to the question. Try and answer the question, please.
THE WITNESS: Yes, Your Honor.
Q. This goes on to state, "A third assumption in equating 'tar' yield with smoke exposure is that the 'tar' yield of a smoke -- machine-smoked cigarette be equal to or at least proportional to the yield of the same cigarette when it is consumed by the smoker." Do you see that?
A. I see that.
Q. And that is the FTC test being referenced there; is it not, sir? Sir?
A. I -- I'm -- I'm reading it, please.
I believe that does reference the FTC standardized smoking method.
Q. All right. And did Reynolds at the time of the 1981 report have information within its files with regard to whether or not smokers who smoke cigarettes did so differently than the FTC machine?
A. In 1981.
Q. Yes.
A. Reynolds was conducting research in 1981 trying to understand the different puffing behavior of -- of smokers with -- with cigarettes. There was prior literature, certainly, that cigarette smokers smoked very differently from one another, and also a single cigarette smoker will smoke differently from puff to puff and from cigarette to cigarette. I think there was some information about that in 1981.
Q. All right. Was that information provided to the Surgeon General's committee?
A. I'm not aware that that specific information was provided to the specific Surgeon General's committee. A lot of that information was already in the public domain.
Q. I want --
Reynolds information?
A. Smoker-behavior research was available in the public domain.
Q. I'm asking about Reynolds information. Was that information provided to the Surgeon General's committee?
A. Not that I'm aware of.
Q. Now you are aware that the tobacco industry could have supplied anything it wanted to to the Surgeon General's committee to have it take that information into account; correct?
*3 A. Well I don't know exactly how the process works. I really don't know.
Q. You don't.
Do you know if Reynolds provided anything to the 1981 Surgeon General's committee regarding the changing cigarette?
A. I don't know.
Q. Have you ever made an investigation to ascertain whether it did or did not?
A. To the '81 Surgeon General report? I don't know.
Q. You don't know if you've undertaken an investigation?
A. No, I thought that was a different question.
I have never undertaken an investigation to determine if Reynolds ever provided anything to the Surgeon General for the 1981 report.
Q. Do you know if anyone at Reynolds has ever conducted such an investigation to ascertain whether Reynolds provided information concerning smoker compensation to the 1981 Surgeon General's committee?

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A. I'm not aware of such case.
Q. Can you direct your attention to page 24 of the Surgeon General's report. At this section of the report, sir, "Research Recommendations From The Working Meeting 'Research Needs On Low- Yield Cigarettes"' is set forth; correct?
A. That's the title of one section.
Q. Did you read this at the time that you first reviewed the Surgeon General's report?
A. There's no doubt that I did. I think I did read this.
Q. And you see here that no attempt had been made by the Surgeon General to place these research recommendations in order of priority; correct?
A. That's what it says at the end of that first paragraph.
Q. Now the first bullet point states as follows: "It must be determined whether lower 'tar' and nicotine cigarettes change smoking behavior. For instance, compensatory adjustment, such as deeper, longer, and more frequent puffs, may turn a nominally lower yield cigarette into a higher yield cigarette. Studies are needed to determine whether adjustments made by smokers of lower 'tar' and nicotine cigarettes may inadvertently increase their exposure to 'tar' and carbon monoxide beyond that expected from a less intensely smoked higher yield cigarette." Do you see that?
A. I see that.
Q. Now when you read that in '81, did you suggest to anyone at Reynolds that they provide the information it had internally about smokers' compensation to the Surgeon General's committee?
A. Did I personally?
Q. Yes.
A. No.
Q. Did you --
A. We were -- we were conducting research in this area at the time.
Q. Did you suggest to anyone at Reynolds that you publish the internal information that you had regarding smokers' compensation at that time?
A. The research was underway and subsequently some of that work has been published, but at the time in 1981, I'm not aware that the data were in -- in a state of completion to be published.
Q. You weren't conducting those studies; were you, sir?
A. I wasn't personally, no.
Q. You didn't set the protocols for those studies; did you?
A. No. We had scientists who were assigned to those projects who conducted smoking-behavior research.
*4 Q. And you don't know what those protocols were; do you?
A. Well I don't think that's completely fair. I know in a general sense some of the protocols for some of the experiments that were conducted.
Q. Can you state the protocol for any given study?
A. Yes.
Q. Which study? Who was conducting it?
A. I can think of one study that was a large smoker-behavior study conducted about the time of this 1981 report where we evaluated smoking behavior for several hundred subjects in Atlanta, Georgia.
Q. Who was in charge --
A. We --
Q. -- of this?
MR. WEBER: Excuse me, Your Honor, he just asked to have the study explained and the doctor was explaining it.
MR. CIRESI: I believe I asked who was conducting it. That was my question.
A. Dr. John Reynolds and Dr. John Robinson were conducting it.
Now what they did was develop actually flow probes to evaluate flow profiles when a smoker draws on the cigarette, and then the protocol was to evaluate smokers smoking one tar level cigarette and then switching those smokers to other tar level cigarettes, usually lower, and measuring how they changed their puffing behavior, and then separately to take those data, come back to a computer-driven smoking machine, feed the data into a smoking machine and have the smoking machine replicate those puffs and measure tar and nicotine.
Q. Do you have that study here?
A. Not with me.
Q. Can you go on, then, to the next bullet point. "Because of changes in cigarette composition, further retrospective and prospective epidemiological studies are needed to assess the health effects of these changes. A primary need is to establish whether

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there are measurable differences in morbidity between smokers of higher 'tar' and nicotine cigarettes and smokers of lower 'tar' and nicotine cigarettes."
Now morbidity is disease; correct?
A. I believe so, yes.
Q. And I believe you said that as of this time Reynolds had not conducted any such type of epidemiological studies; had they?
A. I'm not aware of any epidemiological studies at this time.
Q. Do you know if anyone in the industry had conducted such an epidemiological study as of that time?
A. I'm not aware of any cases. I know there's been a lot of epidemiology done outside the industry.
Q. Goes on to state that "Efforts should include ongoing long-term studies that are adaptable to such epidemiologic inquiry;" correct?
A. That's what it says.
Q. And that epidemiological inquiry was to look at morbidity of smokers of higher tar and lower tar cigarettes; correct?
A. I think that would be my take on this.
Q. If we go on to the next page, we see a list of other types of studies that the Surgeon General found needed to be done in order to compare higher tar to lower tar cigarettes to ascertain morbidity or disease caused by those cigarettes; correct?
A. Well I think what he -- what he did in setting this up was he said it's an overview of research recommendations submitted as a result of the working group. He didn't go into quite the detail in this setup that you did, but --
*5 Q. Well he's talking about animal testing; correct?
A. Well these are additional points following the first two points that we've already covered that were the working group's -- or the working meeting's overall research recommendations. That's what he said.
Q. For example, the third bullet point down talks about "Additional emphasis should be given to both human and animal research models for the developmental mechanism of chronic obstructive pulmonary disease and its possible alteration by lower 'tar' and nicotine cigarettes;" correct?
A. That's what it says, that's correct.
Q. And the first bullet point talks about "The increased use of nonhuman primate models...;" correct?
A. The first one talks about nonhuman primate models.
Q. Those are animal studies; correct, sir?
A. Yes.
Q. Now all of these types of studies could have been done by Reynolds prior to the time you put any low tar cigarette on the market; couldn't they?
A. No, I don't agree with that at all. I think biology has evolved and toxicology has evolved over the years, and I -- I don't think even in 1981 we could look back to a time before that without having the prior knowledge in the development of -- of test methodology, including animal test methodology. I mean the things that are --
Some of the things that are recommended here I think make a lot of sense because there's not a measure of progress to clearly define whether one cigarette design is safer or reduced risk than another. That's my take on this.
Q. Well let me see if we can go to a different take. Epidemiological studies, long-term, could have been conducted before a different product was put on the market; couldn't they?
A. You mean by R. J. Reynolds?
Q. Yes.
A. We're not experts and we don't have experts in epidemiology. I suppose one -- we could go out and hire experts. But to do epidemiology takes a long period of time, usually 20 -- 20 years plus to do an epidemiological study.
Q. So instead it was tested on the smokers in the marketplace; wasn't it, sir?
A. The low tar cigarettes were placed in the market, and -- and you're suggesting that Reynolds should have conducted long-term epidemiology before it placed those low tar products in the market in spite of the fact that the public health community and the medical community were calling for low tar products. Common sense, at least to me, suggests that the lower tar levels ought to be better, and if we waited 20 years to conduct an epidemiology test to determine whether or not in fact there is reduced risk, then we're not responding to the calls of the scientific community.
Q. Well we'll get to who called for this in the scientific community in a minute. My question wasn't whether or not somebody did call for it in the scientific community at

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all, my question was whether Reynolds could have conducted studies before it put a product into the marketplace.
*6 A. And I don't think that would have been the reasonable or responsible course to take. I think the reasonable and responsible course to take was to -- to look at the theories and -- and look to the medical community and the Public Health Service, and they recommended the use of lower tars -- tar products, and we did that.
Q. You mean Mr. Gori or Dr. Gori recommended that?
A. A number of people have.
Q. We'll get to Dr. Gori.
And Dr. Russell you say recommended that; is that right? Is that right?
A. Oh, he's one.
Q. Okay. Can you point to any directive from the FTC or any governmental agency that said we want you to manufacture and sell low tar cigarettes?
A. The 1966 Public Health Service report suggested that lower tar cigarettes ought to be better. A number of --
Q. That's not what I asked. I asked you are you aware --
MR. WEBER: Let me object, Your Honor. He was answering the question and he was interrupted again.
THE COURT: I don't think that was the question that he asked. Re-ask the question, please.
Q. Let me ask the question again.
Can you point to any directive from the FTC or any government agency that said we want you to manufacture and sell low tar cigarettes?
A. If you're speaking to a very explicit directive from an agency of the government which says okay, cigarette industry, we want you to do this, the answer is no, I can't point to such a directive. The whole issue was one of what directions ought to be better, and that's what the public health community was speaking to.
Q. What the public health community said in 1981 in its basic findings, number one, is that there is no safe cigarette and no safe level of consumption; didn't it?
A. I've heard that phrase.
Q. Well you just saw it. It's right in the Surgeon General's report; isn't it, sir?
A. I believe it -- I believe it is.
Q. It's the number one basic finding of the report; correct?
A. Well let me go back and look.
Q. Roman numeral vi.
A. Okay. At the top of the page on Roman numeral vi it says, number one, "There is no safe cigarette and no safe level of consumption."
Q. That's what the Surgeon General said about the changing cigarette in 1981; correct?
A. I think that's part of what the Surgeon General said in his 1981 report. I think there's a lot more.
Q. Now if you can direct your attention to page 26, the page after the one we were just on regarding recommended studies, the first bullet point is "More data are also needed on cigarette flavor additives and their combustion products. Flavoring agents and additives should be studied by cigarette companies for carcinogenicity and toxicity before their commercial use is permitted, and the results of such studies should be made available." Do you see that?
A. I see that.
Q. Now do you agree with that statement?
A. I agree with, I think, the intent of this statement, which is that -- that ingredients should be thoroughly evaluated. I think this statement goes on to suggest regulation, that certain hurdles must be passed before their commercial use is permitted. That's not something I can -- I can agree one way or the other, that's -- that's a matter of law, I think, or regulations. But I certainly do agree that ingredients need to be evaluated thoroughly, and that's what we do at Reynolds.
*7 Q. Before their commercial use is permitted, and the results should be made available; correct?
A. Before their commercial use is permitted is --
Before ingredients are used commercially, the results should be available for thorough evaluation so that toxicologists and biologists can make some determination on the likelihood of risk.
Q. That's the type of evaluation that goes on pursuant to the FDA process; correct?
A. Well I don't know what the FDA process is in detail. I do know what the R. J. Reynolds process is.

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Q. So your answer is you can't answer what the FDA does generally; correct?
A. Well you didn't ask me that directly. But if that's your question, I don't know specifically what the FDA requires in evaluating some material.
Q. But you do know, as you testified this morning, that there has to be a finding that a product is safe and effective before it's allowed to be placed into the stream of commerce by the FDA; correct, sir?
A. I'm not an expert in this area, I don't understand FDA law or FDA regulations, but my general understanding is that for a category of products called drug-delivery devices, that there has to be some demonstration that that drug-delivery device is safe and effective as used.
Q. Now the ingredients that had been used by Reynolds had not been tested before the cigarettes were put on the market; correct?
A. Well I don't think it's that black and white. I think there are a number --
Additives have been used for a long period of time in cigarettes. As science developed and we started to begin understanding things better, I think scientists at Reynolds started evaluating some of the additives that were in cigarettes, and a number were taken out because of suspected issues with the various additives, some after -- after testing remained. I think in -- and then somewhat later on as -- as our knowledge developed to -- to a better position, we established a very rigorous approach, a very detailed approach to evaluating additives.
Don't -- don't forget that in the early '50s and '60s, and even into the ' 70s, before this report, we were spending most of our research effort trying to understand constituents in smoke and how to reduce those constituents in smoke.
Q. The fact is, sir, that the lawyers were thwarting the scientists' desire to look at testing certain additives; isn't that right?
MR. WEBER: Objection, Your Honor. Counsel is testifying.
THE COURT: Rephrase the question, counsel.
BY MR. CIRESI:
Q. Do you know if the lawyers were thwarting scientists' desires to test certain ingredients or additives?
A. In my entire 20 years at R. J. Reynolds, I've never seen that happen.
Q. Can you direct your attention, please, to Exhibit 21504, 21504, volume two. Now this is a document of the R. J. Reynolds Company. It has pursuant to court order been redacted. It deals with smoking and health litigation regarding certain cigarette ingredients; correct?
*8 MR. WEBER: Your Honor, I would object for the reasons the court is aware under 403 and others with respect to any use on this issue.
THE COURT: I don't understand your objection, counsel.
MR. WEBER: This is one of the documents we discussed earlier with the court. I just wanted for the record to advise the court that we do have objections to any use of this document for the reasons we previously expressed, including the Rule 403 reason.
THE COURT: Okay. And didn't the court rule on that?
MR. WEBER: I just wanted to make sure the record as it happened here was clear, Your Honor.
THE COURT: I think the court's ruled on it several times and the record is clear, and you probably don't have to clarify it again.
MR. WEBER: Okay. Thank you, Your Honor.
BY MR. CIRESI:
Q. R. J. Reynolds document; correct, sir?
A. It says "R. J. REYNOLDS TOBACCO COMPANY" at the top.
Q. And if you go to the last page, do you see three names, John Edwards, --
A. Yes.
Q. -- Maynard Thomson, Robert McDermott?
A. Yes.
Q. You know them; don't you?
A. I don't know John Edwards. I don't know Maynard Thomson. I do know Robert McDermott.
Q. Mr. McDermott is Mr. Weber's partner; correct?
A. He works in the same firm as Mr. Weber.
Q. Jones Day law firm; correct?
A. That's correct.
Q. Can you direct your attention to the third page of that document. Have you seen this before, sir?

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A. Not until, I believe, last night, because you designated this for my cross-examination.
Q. And the first time you looked at it was last night?
A. I believe so. I've never -- I've never seen it before I came to this -- to this city this time.
Q. It may have been a couple days before that, but at least it was while you were here; correct?
A. Absolutely.
Q. Okay. You never got a copy of this document?
A. No.
Q. Page three. "Both the industry and its critics have conducted the bulk of their research using 'Kentucky Reference Cigarettes.' Remember the reference to that yesterday?
A. Yes.
Q. You were talking about --
A. I remember --
Q. -- what pH was and everything. You remember that?
A. I remember referencing Kentucky reference cigarettes in the discussion on Premier.
Q. What is pH anyway? What does that "pH" stand for?
A. pH?
Q. Yes.
A. Well it's a measure of acidity or basicity.
Q. But what does "pH" mean?
A. That's a good question. I'm not sure.
Q. You don't know; do you, sir? Do you?
A. No.
Q. portens Hydrogen; --
A. Okay.
Q. -- isn't it? Do you know what --
A. I don't know.
Q. Do you know what portens Hydrogen is?
A. Well I think you're going to tell me.
Q. Do you know?
A. I said no.
Q. No. The force of hydrogens; isn't it? Isn't it, sir?
A. I don't know.
Q. You don't know.
A. I guess you're telling me.
Q. And you didn't know this morning what TCFM was; did you?
*9 A. What is TCFM?
Q. It's Freon 11.
A. Ah.
Q. Trichlorofluoromethane; isn't it?
A. We call it F11.
Q. You didn't know its pure chemical name; did you? Did you, sir?
A. I know its trichlorofluoromethane. I've never seen it referred to by those initials. We internally use F11.
Q. You've never seen the chemical acronym for Freon 11; is that your testimony as a chemist?
A. That's not a chemical acronym that we use inside Reynolds. We use F11 or we call it by its chemical name.
Q. Every chemist who's taken basic chemistry knows TCFM is trichlorofluoromethane; don't they?
A. I'm not -- I'm not sure that that's true at all.
Q. Well at least you didn't know; did you, sir? And you didn't know what pH was, even though you testified about it yesterday; did you?
A. I don't think that's fair at all.
Q. Well --
A. I told you what pH was. I didn't know what the term "pH" stands for, and I doubt that most chemists do.
Q. You're supposed to be an expert in that field; aren't you, chemistry?
A. I am a chemist.
Q. Let's go back to this document. "...our present understanding is that few casing materials and no top dressings are added. The cigarettes are made to vary by tar and

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nicotine content, so it is probable that they contain the same residual amounts of processing agents that are found in commercial cigarettes.
"If ingredients are claimed to be the 'cause' of disease, then both the industry and its critics have tested the wrong product, and much of the prior research is flawed. Thus, both sides would be hard-pressed to rely on that research to support their respective positions on general causation." Do you see that?
A. I see where it says that.
Q. And this document was sometime after 1984; wasn't it, sir?
A. I don't know the date on this document.
Q. Well if you turn over two pages -- excuse me, over to the page that bears the Bates number at the bottom 8127.
A. Okay.
Q. Do you see a footnote there?
A. Yes.
Q. And there's a reference to 1984 down there at the bottom, third line from the bottom. See it?
A. I see the reference to 1984. I don't know whether that means this document is 1984 or not.
Q. Well it would have to be '84 or later, you'd agree with that; correct, sir?
A. I would think so.
Q. Now let's read that paragraph. "A corporate misconduct test premised upon ingredients would consist of claims of testing which was both belated and inadequate, failure to make adequate inquiry into the composition of flavors produced by outside flavor houses, and the failure to remove ingredients known or shown to be harmful. There are memoranda in the RJRT files" --
What's RJRT?
A. R. J. Reynolds Tobacco Company.
Q. Okay. "There are memoranda in the R. J. Reynolds Tobacco Company files which reflect a desire by R&D personnel to test ingredients and which document the policies which the company has followed. A recent memo by a Lorillard employee (Alex Spears) to Dr. Hayes at RJRT suggests that in 1984 the Committee of Counsel thwarted the industry scientists' desires to assure the safety of the product by testing ingredients adequately." Do you see that?
*10 A. I see that, and it surprises me because that's not what I've seen at Reynolds, what this suggests.
Q. Who are the R&D folks whose desires were thwarted? Have you done any investigation into that?
A. I'm not aware of any thwarting. That's why I say I'm surprised by what's said in this document if we take it at face value. I don't know the circumstances behind this. Obviously, when I tried to read this document, there are large sections that are taken out, so I don't really know what it means. But I tell you, if we look at that sentence that you're pointing me to, it's -- it's inconsistent with what I've seen at Reynolds.
Q. Well have you known Mr. McDermott not to tell the truth?
A. I don't know the circumstances behind this. I don't expect Mr. McDermott not to tell the truth. Certainly not.
Q. Now --
A. But I don't understand what this is about because it's foreign to what I've seen at Reynolds.
Q. Of course we don't know who these R&D scientists are who really did want to test; do we? We don't have their names; do we, sir?
A. The only RJR person spoken to in this paragraph is Dr. Hayes.
Q. Now the Alex Spears reference, he was and is the CEO of Lorillard; isn't he?
A. Alex Spears is currently the CEO of Lorillard. In 1984 or after, I'm not sure exactly what his title --
I know he's a -- he's a chemist that used to work in the R&D department at Lorillard, and then he used to be in charge of the R&D department at Lorillard.
Q. So he was an individual who was in charge of R&D at Lorillard; correct?
A. For a period of time, yes.
Q. And this memorandum of Mr. McDermott's states that a recent memorandum by a Lorillard employee, Alex Spears, who you say was in R&D, to Dr. Hayes at RJRT suggests that in 1984 the Committee of Counsel thwarted the industry's scientists; correct?
A. That's what these words say. Again, I don't know the circumstances behind this. And as I said, this is really foreign to my experience at Reynolds.

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Q. Do you know who the Committee of Counsel is?
A. Yes, I do.
Q. And who is the Committee of Counsel?
A. The Committee of Counsel is composed of lawyers from each of -- or the head lawyers from each of the major tobacco companies.
Q. And do they deal with the CTR?
A. Frankly, I don't really know what they do. I know they meet periodically. I'm not sure how often.
Q. Nobody's ever --
A. I don't --
Q. Nobody's ever told you what they do?
A. Not in specific terms, no.
Q. Well have they told you in general terms what they do?
A. Well no, I guess not that either.
Q. Pardon me?
A. Not that either.
Q. "Not that either."
So you don't know anything about what the Committee of Counsel does; is that right?
A. I think that's fair.
Q. Nobody has taken you into their confidence at RJR to tell you what the Committee of Counsel does; is that right?
A. Well I -- I don't think that's an accurate interpretation of it. I just simply don't know what the Committee of Counsel does.
*11 Q. And have you seen other documents in this case which show that the Committee of Counsel has thwarted scientific activities?
A. I don't recall other documents that say that.
Q. Have you seen other documents which show that historically your company and others abdicated their responsibilities to the Committee of Counsel?
A. I don't recall seeing that in any of the other documents either. And frankly, that would surprise me as well, based on my experience at Reynolds.
Q. It would.
Can you turn to Exhibit 10165, which would be in volume one, sir.
A. 10465?
Q. '165. I'm sorry, doctor.
This is a document entitled "Scientific Research Liaison Committee." I'll represent to you that it has been identified as the handwritten notes of Mr. Judge, who was the CEO of Lorillard.
You've looked at this document; haven't you?
MR. WEBER: Your Honor, I'd object to any questioning on this -- (clearing throat) excuse me -- with respect to documents from another company given the ruling that was made earlier, and also under 602 for no personal knowledge.
THE COURT: You may answer the question.
Q. You've looked at this document; haven't you?
A. I can't recall seeing this document before.
Q. Now number one, "We have again 'abdicated' the scientific research directional management of the Industry to the "Lawyers" with virtually no involvement on the part of scientific or business management side of the business." Do you see that?
A. I see where it says that.
Q. Same type of thing we saw in the 1984 McDermott memo; correct?
MR. WEBER: Let me object to that as a mischaracterization, Your Honor.
THE COURT: No, he may answer that.
A. I would say it uses some of the same words. I think it's somewhat different, however. And again, you know, this is -- this is completely inconsistent with what I've seen at my company.
Q. Let's go down below here. Number two. "Lorillard's management is opposed to the total industry future being in the hands of the Committee of Counsel -- it's reminiscent of the late '60s when Ramm's group ran the TI" --
You know that's The Tobacco Institute; correct?
A. Right.
Q. -- "CTR" --
Council for Tobacco Research; correct?
A. Right.
Q. -- "and everything else involved with the Industry's public posture." Do you see that?

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A. I see where it says that.
Q. And you do know that Mr. Ramm was RJR's general counsel; don't you, sir?
A. I know that RJR's general counsel for a time was a Mr. Ramm. I assume that's -- or -- assume that's the same one. I don't know.
Q. Now you've never seen either this document, 10165, or Mr. McDermott's memorandum, which is Exhibit 21504, until this case; is that right?
A. I've never seen either of these two documents. I've never seen this one until just now. I've never seen the other one that we looked at until this case.
Q. And you've been at Reynolds since 1977; was it?
*12 A. '77.
Q. Should the research and development and safety of the product be thwarted by lawyers?
A. Absolutely not. And again, it's my experience over 20 years that it's not. Our research and development department is not run by lawyers, it's not directed by lawyers, and what we need to do and want to do is not thwarted by lawyers. It does not happen.
Q. Where are the memos that are referred to in Mr. McDermott's memo?
A. I beg your pardon?
Q. Where are the memos that are referred to in Mr. McDermott's memo?
A. I don't know what -- what you mean.
Q. The recent memo by the Lorillard employee, the memoranda in the RJR files which reflect a desire by R&D personnel --
A. Well please -- please point me to where you're speaking from then.
Q. Exhibit 21504, page seven.
A. Yeah, I got it in front of me.
Q. Right down at the bottom. You see it? It's right up on the overhead, too, if you can see it better there, sir.
A. Well my bifocals don't work at exactly that distance. Okay. So point me to where you are.
Q. I'm at that point.
A. Okay.
Q. Where are the memos that are referred to, the memoranda in the RJRT files and the recent memo by the Lorillard employee? Do you know where they are?
A. No, I don't.
Q. When you read this, did you ask for those memos?
A. When I read this document?
Q. Yes.
A. No.
Q. Did you have any curiosity about where they might be?
A. I have curiosity about this entire document.
Q. You do now.
A. Yes.
Q. Did you have it when you read the memo?
A. Yes.
Q. Did you ask anybody where are these memos, I want to see them?
A. No, I didn't.
Q. Did you call back to talk to your general counsel or anybody else and say where are those memos, I want to see them before I go on the witness stand?
A. I think you sent over about -- more than -- or close to 200 different documents. I haven't had time to go through all of those in that form of detail.
I was curious about this. I have not had time to pursue this.
Q. I didn't ask about the other documents. When you saw this --
This is alleging that research was thwarted by lawyers; isn't it?
A. I'm telling you I haven't had time to pursue this. I find this document interesting. I don't fully understand it in part because it surprises me, another reason is because there's large sections missing and I really don't understand the context of this entire thing. I am interested in it.
THE COURT: Counsel, do you want to step forward, please.
(Discussion off the record between Mr.
Weber and the witness.)
THE COURT: Counsel.
MR. CIRESI: Thank you, Your Honor.
BY MR. CIRESI:

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Q. Now when you read this and were surprised, did you make any attempt to make any investigation to determine where these other memos were?
A. I haven't had time to. The answer is no.
*13 Q. Can you go back to the 1981 Surgeon General's report, sir, page 26. The second bullet point with regard to research recommendations states as follows: "Research should be done on the distribution, partitioning, and penetration of lower 'tar' and nicotine smoke in the lung, with consideration of potential changes in smoking patterns by those who smoke lower 'tar' and nicotine cigarettes. Cigarette smoking-machines currently in use and the techniques by which animals inhale cigarette smoke in research models may not be representative of the human situation because human smokers are able to take larger, more frequent, and higher velocity puffs. To conduct meaningful assays of cigarette yields and the biological activity of cigarette smoke, it must be determined how smokers actually smoke various types of commercial cigarettes. When this information is available, it will be possible to design cigarette" -- excuse me -- "smoking-machines that yield more accurate estimates of human risk." Do you see that?
A. I see that.
Q. Now that's the subject of what you were participating in in December of 1994 at the FTC; correct?
A. That was one of the charges of the NCI FTC conference, was to evaluate whether changes needed to be made to the FTC smoking methodology.
Q. And the FTC came out with recommendations; didn't it?
A. It came out with a number of recommendations.
Q. And the industry is fighting those recommendations; isn't it?
A. Absolutely not. We've been working very closely with the FTC to help the FTC decide how to move forward. My scientists have had numerous meetings with FTC staff over the last year, provided extensive data. The industry scientists from all the companies have conducted a large collaborative study, obtaining data, provided all that to the FTC in the attempt to help the FTC move forward with modifications to the FTC overall scheme of -- of tar and nicotine reporting. We have not been thwarting it. In fact we've been working with the FTC. And I resent the suggestion that we've -- that we've done otherwise.
Q. You're fighting their recommendations; are you not, sir?
A. Fighting whose recommendations?
Q. The FTC's recommendations.
A. Absolutely not.
Q. You're certain of that.
A. The FTC has suggested that there be not one method, the present FTC method, but rather there be two methods, one that delivers low yields, one that delivers high yields, and that that range be expressed in advertising so that the consumer can see the range of expected tar yields that might be obtained on human smoking. We've worked with the FTC to try to better define that range, and in fact suggest that the higher tar level estimate can in fact be calculated from the lower tar estimate. And we've provided that information to the FTC, that in fact -- and I've had a number of technical meetings with FTC staff where we provided all of our data.
Q. And you're criticizing and fighting the high and low end points; are you not, sir?
*14 A. You mean --
Is your question are we fighting having two values?
Q. Yes.
A. No, we're not.
Q. Are you aware of documents that have been filed before the Federal Trade Commission on behalf of R. J. Reynolds Tobacco Company?
A. I'm aware that a number of documents have been filed that make it clear that the -- that having two numbers isn't going to help give the consumer any more information than he already has. We've made that very clear. The FTC has decided it wants to do something anyway, and so we're working with the FTC to try to help.
Q. You fought the two number type of testing and wanted to stay with the one type of FTC test; didn't you?
A. "Fought" is not the correct word.
Q. Well --
A. We have made it clear -- excuse me. We've made it clear to the FTC that having two numbers is not any better than having one number from a smoking machine, because in neither case is it going to represent what smokers really get. We've made that very clear to the FTC. We've provided a bunch of information.

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I wouldn't characterize this as fighting the FTC, because then when the FTC decides that's what they want anyway, we help them out.
Q. Well let me rephrase my question. You opposed the FTC's proposal; correct?
A. We opposed the approach of going to multiple machine- smoking methods because each of those is still a laboratory test that doesn't represent what any individual smoker gets. It doesn't help the smoker by providing additional information.
Q. Have you ever taken out any ad anywhere in this country and told smokers, "We don't know what you get with these low tar/low nicotine cigarettes, and the FTC test that we use to put the numbers in our advertisements does not predict that?" Have you ever done that?
A. I'm not aware of any case where R. J. Reynolds has done that. The FTC commissioners have, however.
Q. Now on your cigarette packs, low tar/low nicotine, on all the packs, is the number that doesn't predict what an individual might get put on?
A. FTC tar and nicotine numbers are placed in advertisements, not on the packs.
Q. Not on the package; correct? So that a smoker who goes and buys cigarette packs, he doesn't get that information, does he, even though it doesn't predict what he or she would get?
A. Tar and nicotine numbers are placed in all advertisements by agreement with the FTC. Tar and nicotine numbers are not placed on the packs, as you've made very plain, and I think that's absolutely right.
There are a few brands that are the very lowest, like one milligram and two milligram, that use that as -- as -- where the tar number is actually placed on the pack, and there have been a variety of those where that's happened. But typically the tar and nicotine numbers are not placed on the pack. What is on the pack is the category that that cigarette falls into, and the smoker clearly knows whether it's a full flavor, whether it's a lights, whether it's an ultralights, or whether it's a lowest. So four general categories, the smoker knows that. Those categories are based on the numbers. So it's an indirect way. But the exact numbers are on the advertisements.
*15 Q. So you sort of tell them indirectly what it might be for which it won't make any difference about how they smoke; is that what you're telling me?
A. I don't understand that question.
Q. Well the numbers don't tell an individual smoker what he or she will get; correct?
A. The numbers were never intended to represent what any individual smoker gets.
Q. And RJR, and for that matter none of these companies, to your knowledge, have ever stated that publicly to the consumer; have they?
A. I've already answered that, and my answer once again is I'm not aware of any case where R. J. Reynolds has said that to the public. The FTC commissioners have, however.
Q. Now where has RJR said we consider low tar to be six to 14 milligrams of tar? Where have they said that to the public or any information that the public gets?
A. Information to the consumer?
Q. Yes.
A. I'm not aware of a case where we've told the consumer what the ranges are, but they know that -- generally the ordering of the categories.
Q. And Reynolds is free to put any information it wants so long as it can back it up with data on its package -- packages; correct?
A. What do you mean, "any information?"
Q. It could put what the milligrams of tar are on its package; correct?
A. R. J. Reynolds could put the tar yield under FTC on its pack, and as I've already said, some of the very lowest products have advertised those as one milligram or two milligram on the pack.
Q. It could put that it doesn't -- that number doesn't mean that's what an individual smoker is getting; couldn't it?
A. Well there's no reason that it couldn't.
Q. It could put don't overcompensate on these cigarettes or they may be more harmful; couldn't it?
A. There's no reason R. J. Reynolds couldn't do that. I think --
Q. Now please go back to page 26, sir. The bullet point right in the middle, "Controlled studies...," do you see that?
A. Yes.
Q. "Controlled studies are needed to determine the role of nicotine as a primary reinforcer in cigarette smoking and to determine whether there are other chemicals in addition to nicotine that may contribute to or reinforce the smoking habit. By analyzing the mechanisms whereby nicotine reinforces smoking behavior, it may be able -

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- it may be possible to design more efficacious methods of smoking cessation." Do you see that?
A. I see that.
Q. Now as of 1981, are you aware of any company, including RJR, who turned over to the Surgeon General, the FDA, or any governmental agency, all of its internal information regarding smoking and addiction?
A. The word "addiction" is not in this paragraph --
Q. I understand that.
A. -- because this is before the Surgeon General --
Q. I know that.
A. -- of 1988.
Q. That's why I asked the question. Are you aware of any company that turned over their information regarding smoking and addiction to the FDA, to the Surgeon General, or any other governmental agency, in 1981?
*16 A. I'm aware that a number of companies have conducted research in the area of nicotine, nicotine pharmacology, the chemistry of nicotine, and a variety of other things. I know that some of that work has been published in the scientific literature.
To answer your specific question, I'm not aware of any company that has turned over all of its nicotine research.
Q. And sir, if you go to page 99 of this report, do you see there the title "Flavor Additives?"
A. Yes.
Q. If you go to the last paragraph under that section --
Did you read this, by the way, in 1981?
A. Yes.
Q. The last paragraph, "The exact delineation of the chemical structure of additives, their pyrolytic products, the possible carcinogenic properties, and the quantities found in smoke of lower 'tar' cigarettes is urgently needed in order to assure the customer -- consumer that the filter, lower 'tar' and nicotine cigarette does not carry additional or new health risks." Do you see that?
A. I see that.
Q. And you were aware of that in 1981; weren't you, sir?
A. I read this in 1981.
Q. And when you read it, you were doing that in discharging your duties and responsibilities on behalf of the company; correct?
A. In 1981 I was doing basic research in the area of cigarette design and smoke formation.
Q. You were doing research on nicotine; weren't you?
A. I have done research in the area of nicotine.
Q. You were doing research on the delivery of nicotine; weren't you, sir?
A. I've done research on the effects of cigarette design on nicotine yield.
Q. You were doing research on the segmentation of the cigarette to determine how nicotine will be delivered to the smoker; weren't you?
A. I've done research on cigarette -- unique cigarette designs that alter the puff-by-puff delivery of tar and nicotine.
Q. And nicotine; correct, sir?
A. Tar and nicotine.
Q. In fact, your first patent, if one looked at the figures --
You know what figures are in a patent?
A. Of course I do.
Q. Okay. They are diagrams of the invention which show certain aspects of the invention or the operation of the invention; correct?
A. Generally.
Q. And every one of the figures in your first patent deals with nicotine and puffs; doesn't it?
A. There are figures that deal with nicotine as a function of puff number.
Q. Every single figure in the patent; correct?
A. I'd have to go back and look.
MR. CIRESI: May I approach, Your Honor?
MR. WEBER: Excuse me. Was this document designated?
MR. CIRESI: I'm just refreshing his recollection.
MR. WEBER: Your Honor, there's no refreshing-recollection exception to the designation rule in this case that's been applied thus far.

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MR. CIRESI: Your Honor, I'm not going to put the patent in evidence.
THE COURT: Is this his patent?
MR. CIRESI: Yes.
THE COURT: Well he can look at his own patent, I guess.
*17 MR. CIRESI: He just said he'd have to look at it.
(Document handed to the witness.)
MR. WEBER: Is there an extra copy, counsel?
MR. CIRESI: That's all I have. Oh, wait a minute, we may have another one.
BY MR. CIRESI:
Q. Is that the '024 patent, doctor? I'm sorry.
A. Yes.
Q. Yeah.
(Document handed to Mr. Weber.)
Q. Do the figs. deal with nicotine and puffs, the figures?
A. The figures that include graphs deal with nicotine as a function of puff number.
Q. Every one; correct?
A. All of the graphs in this patent deal with nicotine delivery as a function of puff number.
Q. And can you direct your attention, sir, to Exhibit 12408. It's toward the end of volume one, sir.
THE COURT: Counsel, would you return that --
Are you finished with that?
MR. CIRESI: Yes, I am. May I approach, Your Honor?
THE COURT: Yes.
(Document handed to Mr. Ciresi.)
MR. CIRESI: Thank you.
BY MR. CIRESI:
Q. That's a 1972 memorandum of Dr. Claude E. Teague, April 14th, 1972.
A. Yes, it is.
Q. Nine years before the Surgeon General's 1981 report?
A. That's right.
Q. It's confidential; correct?
A. It's marked RJR confidential.
Q. And that's a stamp that's used within the R&D department of RJR; correct, sir?
A. Sometimes. Sometimes not.
Q. Under what circumstances is it supposed to be used?
A. Well there are not clear guidelines at this point on the use of confidential stamps. I think most of us consider everything, all the internal documents, to be RJR sensitive and confidential, and -- and so all documents are maintained that way.
Q. Are they all stamped RJR confidential?
A. All documents produced in RJR R&D?
Q. Yes.
A. No, they're not all stamped.
Q. So there are varying orders of confidentiality within the department; correct?
A. That's exactly what I'm trying to tell you, is that there are no protocols for stamping documents in the R&D department at this time. I think a long time ago there used to be defined protocols, but in -- in R&D and for quite a number of years there are -- there are no protocols for what is a confidential document and what is not because we've assumed that all internal documents to RJR are company confidential.
Q. That's today's policy; correct?
A. I'm saying there is no policy. We're assuming that, and there is no policy regarding stamping of documents.
Q. Okay.
A. It's company property, however.
Q. So today every document is assumed to be confidential. Is that a fair statement?
A. I think that's fair, along with the statement that many documents are not stamped, but they're still assumed confidential.
Q. Right. But even today some documents are stamped confidential; aren't they?
A. That's true.
Q. Now this was a research planning memorandum on the nature of the tobacco business on the crucial role of nicotine therein; correct?
*18 A. That's what it says, that's correct.
Q. And you talked about the memo a little bit on direct; didn't you, sir?

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A. Yes.
Q. And the first page, if we go to that, please.
A. Okay.
Q. And at the top it states --
And by the way, do you know what position Dr. Teague had at this time?
A. I can't be entirely certain in 1972.
Q. He achieved a high position in the research and development department; didn't he?
A. Relatively speaking. As I recall, maybe the highest position he -- he got to before he retired, he was director of administration and a number of other functions, but he was at the director level. Before that --
Q. The research and development department?
A. For the research and development department. And before that he was director of R&D planning.
Q. Director of R&D planning; is that what you said?
A. Before he became director of the administrative services, which is essentially taking care of the building and the operation of the R&D facility.
Q. Now in this memorandum on page one, Dr. Teague states, "In sense, the tobacco industry may be thought of as being a specialized, highly ritualized and stylized segment of the pharmaceutical industry. Tobacco products, uniquely, contain and deliver nicotine, a potent drug with a variety of physiological effects." Correct?
A. That's what it says.
Q. And he goes on to state, about a third of the way up in that first paragraph, "Thus a tobacco product" --
Do you see that?
A. Yes.
Q. -- "is, in essence, a vehicle for delivery of nicotine, designed to deliver the nicotine in a generally acceptable and attractive form. Our Industry is then based upon design, manufacture and sale of attractive dosage forms of nicotine, and our Company's position in our Industry is determined by our ability to produce dosage forms of nicotine which have more overall value, tangible or intangible, to the consumer than those of our competitors." Correct?
A. That's what it says.
Q. Now you said you were a smoker on direct; correct?
A. Yes.
Q. How old were you when you started smoking?
A. About 27 or thereabouts.
Q. Twenty-seven.
Can you go on to page four.
Did you start when you started with the company?
A. No, I started before I joined the company. I was approximately 30 when I started with R. J. Reynolds.
Q. Okay. If you go on to page four, do you see that Dr. Teague is talking about learning more about nicotine absorption, action, elimination, enhancement and the like? Do you see that?
A. In a general sense.
Q. Now if we go to the last full paragraph, "Before -- Before proceeding too far in the direction of design of dosage forms for nicotine, it may be well to consider another aspect of our business; that is, the factors which induce a pre-smoker or non-smoker to become a habituated smoker. Paradoxically, the things which keep a confirmed smoker habituated and 'satisfied,' i.e., nicotine and secondary physical and manipulative gratifications, are unknown and/or largely unexplained to the smoker -- non-smoker. He does not start smoking to obtain undefined physiological gratifications or reliefs, and certainly does not start to smoke to satisfy a non-existent craving for nicotine." Do you see that?
*19 A. I see that.
Q. Now when you started smoking, did you like the taste?
A. Um --
Q. The very first cigarette.
A. Well it was a different taste certainly. I think I did like it. I think I did find that to be a pleasurable thing for me.
Q. First time you took a cigarette you thought it to be a pleasurable thing?
A. I think that's my recollection.
Q. It is.

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A. Yeah.
Q. It didn't sort of taste a little foul to you?
A. That's -- that's a long time --
I'm just telling you the best I recall.
Q. Now Dr. Teague goes on to say, "Rather, he appears to start for purely psycological reasons -- to emulate a valued image, to conform, to experiment, to defy, to be daring, to have something to do with his hands, and the like." Do you see that?
A. I see that.
Q. Now when we're talking about emulating a valued image or conforming or experimenting or defying or to be daring, does that call to mind youth?
A. Those are -- I guess those are values, whether it's going to image, conforming, experimenting, defying, being daring, that span certainly across all age groups. I would say most people probably associate that with -- with younger people --
Q. Teen-agers.
A. -- in general.
Q. Teen-agers in general; correct?
A. Well you can't draw limits like that. Younger adults, twenties, 25, under 30. You know, you can break it down into different segments and say: Are under 30 people more daring? Well in general that's probably true, isn't it?
Q. All right. So you wouldn't say that those attributes which we've just read do not generally apply to teen-agers.
A. That's not what I said. What I said is I don't see how -- or what I meant to say, if I didn't, is I don't see how we can draw solid, hard lines of demarcation here. I think people's assumption of certain values or approaches to life may skew in one direction. But calling them teen-agers or 30 and under or whatever, I just don't see how one does that.
Q. Now you said that Philip Morris sold a denicotinized cigarette; correct?
A. They sold a number of brand styles, somewhere in the neighborhood of maybe 18 different brand styles.
Q. And you said they didn't sell very well; is that right?
A. I think they failed in the marketplace.
Q. Now do you know what type of acceptance they found when they first came out?
A. You mean acceptance, or do you mean trials in the market?
Q. No, I mean acceptance. Do you know what percentage of the market they got when they first came out?
A. I think there were a number of trials on the new product. I'm not --
I don't believe that there was any significant share of market, however.
Q. Do you know if they got a percent or two percent of the market and then dropped off?
A. I'm saying I don't think they got a significant share of market.
Q. I didn't have ask "significant," I'm asking you now if they got a percent share of the market.
*20 A. No.
Q. You don't know.
A. No, they did not get a percent share of the market.
Q. Now can you go to page six. About five lines down do you see the part beginning "If, as proposed above...?"
A. Yes.
Q. "If, as proposed above, nicotine is the sine qua non of smoking, and if we meekly accept the allegations of our critics and move toward reduction or elimination of nicotine from our products, then we shall eventually liquidate our business." See that?
A. I see where it says that.
Q. Do you agree with that?
A. I don't agree with part of it, I agree with part of it. If nicotine is the reason for smoking -- if nicotine is the reason for smoking and you eliminate nicotine, then you lose business. If nicotine is the reason for smoking and you reduce nicotine, history has shown that as -- through tar and nicotine reduction, we can still main consumer -- maintain consumer acceptance. If you eliminate nicotine altogether, history has also shown that those products are not acceptable. So nicotine is important for smoking at some level because we know from experience, going to none, those products are not acceptable. But we've also shown that consumer acceptance with nicotine levels that are quite low, much lower than they used to be, those products are still acceptable.

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Q. Well if you eliminate nicotine --
As you said, almost all of it can be eliminated; correct?
A. Philip Morris used a denic process to eliminate virtually all the nicotine.
Q. So technologically that can be done; correct?
A. Technologically one can make a dramatic reduction in nicotine.
Q. And if that were done, you'd liquidate the business; correct?
A. If the only products sold in the market had no nicotine, I think those products would be unacceptable, and I think -- I think that would -- I think sales would decline.
Q. And no matter how flavorful that cigarette were and how people liked to roll it in their hands and roll the smoke in the back of their neck -- or throat, excuse me, the business would be liquidated without the nicotine; correct?
A. I think I've already answered your question.
Q. And the answer is yes; isn't it?
A. I think a cigarette that has absolutely no nicotine is not acceptable to consumers.
Q. And so the question is how low can you go and still keep people hooked; isn't it, sir?
A. And still keep people --
Q. Hooked.
MR. WEBER: Object to the argumentative nature of that, Your Honor.
THE COURT: You may answer that.
A. Well I really don't understand what you mean by "hooked." I'll tell you that what we've done is we've reduced tar and nicotine levels dramatically over the years, as I've already explained, I think, time and time again, and the range of products offered to consumers today go down -- go from -- from, oh, say in the neighborhood of 1.3 or 1.4 milligrams, maximum, all the way down to less than .1, which is so low it's very difficult to measure.
*21 Q. What --
A. And -- and --
Q. Sorry.
A. -- that range has -- those ranges are -- of products are in the market, and people buy them. So --
Q. So you're keeping them in the market with those range of products; correct?
A. Keeping what in the market?
Q. Keeping those people in the market with that range of products; correct?
A. I work for a cigarette manufacturer --
Q. I know you do, sir.
A. -- and my -- and my company does not keep somebody in the market. They can quit if they want to.
Q. I see. Now the .1 nicotine level, what share of the market does that have?
A. It's a very small share of the market. A few percent.
Q. What percent?
A. It's a few percent.
Q. Three?
A. I would say it's less than -- less than about --
It's certainly less than two percent and maybe less than one and a half percent.
Q. Less than one percent; isn't it?
A. I haven't seen the latest numbers on it.
Q. Now RJR looked over the years how low could it go and still keep the physiological kick; didn't it?
A. I think there's some language in Dr. Teague's memo to that effect.
Q. Well let's take a look at Exhibit 12777. This is not Dr. Teague's memo, this is Mr. Laurene's memo; correct?
A. This one is, yes.
Q. And it's to Dr. Senkus; correct?
A. Yes.
Q. And who is Dr. Senkus?
A. Dr. Senkus is an RJR employee, used to be an RJR employee working in the research and development department.
Q. And what position did he obtain?
A. He was head of the research department.
Q. Head of it.
A. Yes.

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Q. And this is dated May 24th, 1971; correct?
A. That's correct.
Q. And he's talking about possible IBT, which is Industrial BioTechnical projects; correct?
A. That's correct. IBT was a contract laboratory.
Q. And what is --
The subject matter being discussed here is "As a result of discussions with Dr. Teague and with Section heads, the following are suggested as possible IBT undertakings;" correct?
A. It says that these are some possible IBT undertakings.
Q. And one of them, if you look at number four, the "Habituating level of nicotine (How low can we go?)" Correct?
A. That's what it says.
Q. And in the REST document that we saw which goes all the way up to 1991, it's stated there that RJR was basically in the nicotine business; didn't it?
A. I've seen that, something similar to that in the -- in the REST document.
Q. Take a look at Exhibit 13165. It's in volume two, sir.
THE COURT: Counsel, counsel, I think we should take a short break.
MR. CIRESI: All right. Very good, Your Honor.
THE CLERK: Court stands in recess.
(Recess taken.)
THE CLERK: All rise. Court is again in session.
(Jury enters the courtroom.)
THE CLERK: Please be seated.
THE COURT: Counsel.
MR. CIRESI: Thank you, Your Honor.
BY MR. CIRESI:
Q. Doctor, do you have Exhibit 13165, the REST document?
*22 A. Yes.
Q. Can you go to page 9584. That's the Bates number, sir, the last four numbers.
A. Okay.
Q. The title on this page is "Controlled Nicotine Process;" correct?
A. That's correct. That's the title.
Q. And do you see there the "Basis?"
A. Yes.
Q. "We are basically in the nicotine business." Correct?
A. That's what it says.
Q. And this is a 1991 document; correct?
A. May 3rd, 1991.
Q. And that's approximately -- almost 20 years after Dr. Teague's document of April 14th, nineteen ninety -- '72; right?
A. That's close.
Q. Now you agree that nicotine is a pharmacologically active substance; don't you?
A. I believe that nicotine exerts a mild pharmacology.
Q. It's a pharmacologically active substance; correct, sir?
A. I believe that it -- it has a mild pharmacological action on the human body.
Q. On the human body.
A. Yes.
Q. So that it affects the function of the human body; correct?
A. I think nicotine exerts a mild pharmacology, a lot in the same way that many other compounds do like caffeine or theobromine or a number of things.
Q. Doctor, I'm not asking you about caffeine, theobromine or any number of other things. My question was: So it affects the function of the human body; correct?
A. My superficial understanding is that something that has a mild pharmacology affects the body.
Q. You only have a superficial understanding of nicotine?
A. I'm not a biologist.
Q. I didn't ask if you were a biologist. Do you only have a superficial understanding of nicotine?
A. Of nicotine pharmacology. I don't certainly understand nicotine pharmacology, I don't understand biology.
Q. Then you don't know what --
A. I'm not an expert in biology.

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Q. Then you don't know if it's a potent poison; do you?
A. A potent poison?
Q. Yes.
A. Nicotine at -- nicotine exposure at high levels is certainly toxic, if that's what you mean.
Q. Can kill; correct?
A. At certain high-level exposures, sure.
Q. What level of exposure? How many milligrams can kill you?
A. I really don't know.
Q. Less than 30?
A. I really don't know. I'd have to go back to the Materials Safety Data Sheet.
Q. So you simply don't know how mild or potent nicotine actually is; do you?
A. In terms of toxicity, I know that -- that nicotine exposure is toxic at certain levels. I don't know, as we sit here today, what that threshold level is.
Q. Now you hold four patents; is it?
A. Three.
Q. Three. They all deal with nicotine?
A. They all deal with the same invention, which is described roughly in the patent that we looked at.
Q. So the '024 patent basically sets forth the basic underlying invention, and the others are extensions or modifications of that patent.
A. No. I think they're all interrelated. I wouldn't say the first one necessarily sets out the whole thing. They're -- they're all interrelated, speak to the same thing, which is changing the design of cigarettes to change the puff-by-puff tar and nicotine delivery profile.
*23 Q. They all --
A. The yield profile.
Q. They all deal with nicotine; correct?
A. They all deal with nicotine and with tar changes, too.
Q. Did you do any studying on nicotine before you embarked upon whatever research you did do to file your application in front of the United States Patent and Trademark Office?
A. What kind of study of nicotine? That's a broad area.
Q. Its pharmacological effects.
A. I'm not a biologist. I didn't do any studies myself of the pharmacology of nicotine.
Q. All right. So --
A. We had scientists at Reynolds who have studied nicotine pharmacology.
Q. So you have no first-hand knowledge based upon your scientific investigation into the pharmacological effects of nicotine; do you?
A. I'm not an expert in the area. I don't know details about the pharmacology of nicotine.
Q. And therefore you have no sound scientific basis to state how potent or mild the pharmacological effect of nicotine is; do you?
A. We have excellent scientists in the area at Reynolds. They have described a number of things to me. They've characterized it as a mild pharmacology. I trust our scientists.
Q. I didn't ask what somebody else may have said because they're not here for me to cross-examine. I asked you --
A. Could you --
Q. -- if you knew, --
A. You were asking --
Q. -- if you performed an investigation yourself.
A. You were trying to explore what I understand about the pharmacology of nicotine. What I understand is what I've -- what I've learned in discussions with experts in the field that work for R. J. Reynolds.
Q. Now based upon your own education and your own research, you do not know how potent nicotine is or is not; do you?
A. I'm a chemist, I'm not a biologist. Going strictly by your question, I can't, based on my education or my experience, speak to the degree of pharmacology of nicotine in the human body.
Q. And you don't know the effect of free nicotine in the body based upon your own education or experience; do you?

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A. I don't think that's exactly accurate. I have some experience in understanding cigarette design and understanding smoker reaction to cigarettes, smoker acceptance of cigarettes. If you're talking about the physiology of free nicotine, no, I'm not an expert in that area.
Q. You don't know anything about the physiology of free nicotine based upon any experiments or tests that you yourself have conducted; do you?
A. No, I've never conducted experiments in that area.
Q. Can you direct your attention, please, to Exhibit 12270. This is an RJR memorandum dated September 21, 1976 from John L. McKenzie to Mr. A. P. Ritchy; correct?
A. It's from McKenzie to Ritchy on September 21st, 1976.
Q. And do you know Mr. McKenzie?
A. I know John, yes.
Q. What's his position at the company?
A. Well let's see, the last time I saw John, he was transferring to one of our international units. He's worked in operations or manufacturing for -- for a good while. He's not in -- he's not presently in the research and development department.
*24 Q. Pardon me?
A. He's not presently in the research and development department.
Q. Okay. But he was in the research and development department in 1976; correct? If you know.
A. Best of my recollection, I think that's correct.
Q. And you learned that after you came on board in 1977?
A. That --
Q. He was in the research department in 1976.
A. I think, to the best of my recollection, John McKenzie had been in research and development for some time before I arrived.
Q. And who was Mr. Ritchy?
A. I don't know Mr. Ritchy.
Q. Can you direct your attention, sir, to page two of that document.
A. Sure.
Q. Do you see the notation -- or the paragraph entitled "Nicotine?"
A. Yes.
Q. And it states that "The psychopharmacological agent in tobacco, which is one of the key factors in satisfaction, is nicotine;" correct?
A. That's what it says.
Q. And then it talks about a window where that nicotine range should be within cigarettes; correct?
A. I don't see the word "window" used.
Q. Well they have a range from .2 to 1.8 milligrams per cigarette. Do you see that?
A. It says, "Typical nicotine in smoke values for cigarettes range from .2 milligrams to 1.8 milligrams per cigarette." My take on that sentence is he's referring to the typical range in the marketplace.
Q. Well right above that he's talking about whether the nicotine is too low, or if it gets too high, and what would happen in either event; correct, sir?
A. I think that's a fair characterization. But the last sentence, those numbers that you referred to I take it from this memo to represent those levels that are -- that were in the market at that time.
Q. And he's talking about, though, in that paragraph, going too low or going too high and what the implications of that would be; correct?
A. That in a general sense is what he's speaking to.
Q. And in the last paragraph he's talking about pH; correct?
A. Yes.
Q. And about the immediacy of the nicotine impact; correct?
A. Yes.
Q. And that as the pH increases, the nicotine will change its chemical form so it is more rapidly absorbed by the body and more quickly gives a kick to the smoker; correct?
A. That's what he says.
Q. But if the pH becomes too high, the smoke cannot be inhaled as is the case with cigar smoke; correct?
A. That's what's said here.
Q. And if you go on to the next page, he talks about the cigarette being a complex chemical reaction chamber for the generation of an aerosol containing flavoring materials and nicotine; correct?

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A. That's what it says.
Q. And on the preceding page he talks about the taste coming from the tar; correct?
A. Where are you talking about?
Q. Right next to the word "Tar" on the previous page.
A. Okay.
Q. Let me read it for you.
A. I'm sorry, your question was --
Q. Let me read it for you. "The designation tar is a misnomer for the complicated but discrete mixture of solid and liquid materials in smoke aerosol excluding water, which is omitted, and nicotine, which is reported separately. The smoke tar contains the majority of flavorant materials responsible for the taste of cigarette smoke. A reduction in tar leads perforce to a reduction in taste perception. Application of more top flavor materials and selection of stronger flavored tobaccos are typical procedures for amelioration of the loss associated with tar reduction." Do you see that?
*25 A. I see that sentence.
Q. And you agree with that; don't you, sir?
A. I think I agree with some of it and not others.
Q. You do agree that the tar contains a majority of flavorant materials; don't you?
A. I think many flavoring materials or flavorful materials are present in the tar. We already talked about pyrazines and other highly flavorful compounds. There's no question about that. I think the gas phase also contains constituents. Some of the constituents of the gas phase are important to the overall taste perception as well.
Q. But as a chemist, you're not equipped to say nicotine is an important compound for the taste aspects or characteristics; correct?
A. Based on my experience as a product developer, I -- I firmly believe that nicotine is important to the overall taste perception. Nicotine is irritating; there's a sensory response in the oral cavity and the upper respiratory tract. No question about it. It is important to the overall sensory perception of that product.
Q. Talking about taste.
A. And your question is?
Q. Well let me refer you back to the FTC December 4th, 1994 conference you were at where Dr. Freeman asked you this question.
A. Can you refer me to a page, please?
Q. Page 191.
MR. WEBER: Can we have an exhibit number?
MR. CIRESI: 4994.
MR. WEBER: Thank you.
BY MR. CIRESI:
Q. You'll recall we went over this this morning, sir. It's page 191.
A. Okay, I'm there.
Q. Do you have it?
A. Yes.
Q. "DR. FREEMAN: Dr. Townsend, I just want to ask one question, and it may be a little naive. Several times you have mentioned the value of tar in cigarettes because you say it is associated with taste. Even conceding that although it seems to be a thing that is killing people.
"But what about nicotine? What is the value of nicotine and cigarettes, and why could it not be dramatically reduced?
"DR. TOWNSEND: Nicotine, of course, is part of the smoking sensation. It does provide a sensation to the smoker. I think one of our competitors found that tobacco that had been treated to remove all the nicotine was not successful in the marketplace.
"More than that, just as I cannot look into the components of tar and say, this is a very important, tasteful, and flavorful compound. You know, I am not equipped as a chemist to say nicotine is an important compound for this aspect of taste characteristics."
Now that's what you said there; correct?
A. That's -- that's what's taken here, and it's, frankly, excerpted from a series of discussions and background. I think it's clear to me that it's -- it's absolutely right that I cannot go into tar and say this is the flavorful compound that's important to smokers. I think there's a number of compounds in tar that influence taste perception, and some smokers prefer different taste than others.
To the second paragraph about nicotine, I think nicotine is important to the sensory characteristics of -- of smoker acceptance of a product. I've said that in the first paragraph that you read. If you're -- and what I was referring to here is, as a

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chemist, I can't specifically talk about the mechanism of taste or flavor of nicotine and its relationship or its interaction in the body.
*26 Q. Well an alkaloid, you know it's got a rotten taste; don't you?
A. No, I don't know that at all.
Q. You don't.
Can you turn to Exhibit 12673.
A. Okay.
Q. This is an RJR memo dated November 9th, 1976 from W. M. Henley to Dr. D. H. Piehl; correct?
A. Yes.
Q. And it deals with nicotine; does it not?
A. This is a discussion group about nicotine, about nicotine research.
Q. And it talks about the physiological action of nicotine as affecting the cholinoceptive receptors of the neural junction in the brain?
A. There's a section here that's essentially a literature survey on physiological action of nicotine by Bob Moates, who was a chemist.
Q. At --
A. R. J. Reynolds.
Q. -- RJR.
And then if you go over to page three, talks about taste perception of nicotine.
A. There's a section that was part of the discussion on the taste of nicotine by Chuck Rix, also a chemist at R. J. Reynolds.
Q. And the taste perception, it says "Some Taste (foul, rotten rubber)."
A. Yeah, I see that, and I've seen it before.
Q. Do you disagree with that, too?
A. Well I don't know that that's in fact the case. I know that nicotine exerts certainly a sensory effect, as I've already indicated, like carbonation in Coke. I don't know particularly that it has a taste, and, if it has -- and if it does, whether that taste is like rotten rubber.
Q. All right.
A. I don't know.
Q. So you have no idea whether it has a taste or not.
A. This is the only reference I've seen to internal research on the taste of nicotine.
Q. So in all your years at Reynolds, and based on all your years, you don't know if it has taste or not; correct?
A. A taste in the classical sense that -- that it imparts a particular, specific taste. It certainly is important in the overall taste perception or sensory perception of the cigarette, as I've indicated several times.
Q. Well --
A. Does it have a specific taste itself? I don't know. I've never done any experiments. I know that this is one reference to an experiment where this was a conclusion. I don't know whether it's accurate or not.
Q. Well do RJR people generally put down inaccurate stuff in their minutes?
A. I think our scientists are quite good. I think there are some -- some experiments that may be conducted incorrectly from time to time and some incorrect conclusions are drawn from time to time.
Q. Now doctor, back when you were at the FTC conference in 1994 --
A. Are we turning back to that document?
Q. Well you can if you'd like to, if you need it. I'm just talking about the smoking cessation of nicotine.
A. What page are you on?
Q. Do you recall that you talked about that?
A. What page are you on?
Q. 191, Exhibit 4994.
A. Okay, I'm there.
Q. And you were talking there about nicotine is part of the smoking sensation; correct?
A. I said, "Nicotine, of course, is part of the smoking sensation."
*27 Q. So it affects, as you said a little bit earlier, bodily functions by providing a sensation; correct?
A. I think there's a sensation in the oral cavity and upper respiratory tract, a physical sensation. No question about it. And there's also a mild pharmacology associated with nicotine. No question about it.

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Q. That affects the brain; correct?
A. The psychopharmacological action of nicotine affects the brain.
Q. Affects the brain.
Now you said that if you completely eliminated nicotine, you probably wouldn't be selling cigarettes; correct?
A. I think what I said was that cigarettes with extremely low level or no nicotine are not consumer acceptable.
Q. So that RJR deliberately gets its nicotine up to where this sensation will take place; correct?
A. No, that's not true at all. We don't deliberately get our nicotine up, because tobacco inherently contains nicotine.
Q. Well you take it out and then put it back; correct?
A. No. I don't understand what you're saying. We don't take nicotine out and then put it back. I don't understand that at all.
Q. On the reconstituted paper, do you take the nicotine out?
A. That's a process where we take the water extracts, the water-soluble materials out, we hold it to the side while we make a paper sheet, then we reapply it.
Q. What's the lowest nicotine level cigarette you have?
A. Less than -- less than .1 and in the range of .05 milligrams per cigarette.
Q. .05 milligrams. So you are able to control nicotine down to .05 milligrams per cigarette; correct?
A. I think that's a complete misinterpretation of -- of -- of what we -- what I've said we do in designing cigarettes for very low tar or for low tar. We use filtration, high efficiency -- high efficiency filters, we use air dilution, we use expanded tobacco, reconstituted tobacco, and a number of techniques to get these very low levels.
We make cigarettes with tobacco that contains nicotine, that nicotine is inherent or endogenous in the tobacco, and through the construction techniques we're able to get very low tar and nicotine levels.
Q. You control the nicotine down to a very low level through your design parameters. That's what you just said; correct?
A. Different set of words. I'm just trying to make it clear what we do.
Q. Yes. You control nicotine down to a very low level pursuant to your design parameters; correct?
A. We design cigarettes to achieve extremely low tar and nicotine levels.
Q. Now you can also have design parameters so that the nicotine level is higher; correct?
A. Higher than what?
Q. Than .05 milligrams per cigarette.
A. We can, through cigarette design techniques and various combinations of cigarette designs, make cigarettes that have higher tar and nicotine, and in fact that's what we offer in the market, is a range of products from higher levels of tar and nicotine all the way down to extremely low levels of tar and nicotine.
*28 Q. And each one is a deliberate design choice by RJR to put that type of cigarette into the market with those design characteristics; correct?
A. I think it is a design choice to -- to design a product to a specific design goal for different -- for a certain tar level, and in particular we -- we develop and manufacture and sell products in a range of tar and nicotine levels.
Q. And you know when you're doing that that you are affecting the body of the smoker with regard to the nicotine level in differing ways, depending upon the level of nicotine in the cigarette; correct?
A. Well again let me make it clear, nicotine exerts a mild pharmacology. There's no question about it. Nicotine is present in cigarette smoke. We have manufactured cigarettes over a wide range of tar and nicotine yields for consumers to choose among.
Q. And in doing that, you know there will be a different affect at .05 as opposed to five milligrams or six milligrams of nicotine; correct?
A. Let me -- let me see if I understand. Are you asking me at a higher nicotine level cigarette, will there be a different physiological effect?
Q. Yes.
A. I think -- and again I'm not an expert in this area, and you understand that very well, but I think my superficial response to that would be that at a higher nicotine level, there would probably be more of a physiological effect.
Q. And that is as a result of these conscious design choices that you have made; correct?

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A. Absolutely not. We've designed cigarettes that -- that deliver tar and nicotine and provide a range of products, we put them in the market, and consumers choose them or reject them.
Q. And sir, you have put these various products in the market knowing that they have different levels of nicotine and can have different effects, you just said; isn't that right?
A. We put products with different levels of tar and nicotine in the marketplace, and consumers choose the products they want to smoke.
Q. And --
A. Some choose low -- the very low tar products, some choose the higher tar products, --
Q. And you --
A. -- and many choose those right in the middle.
Q. And you have deliberately put in the market those differing levels of nicotine; correct?
A. We have intentionally put different cigarettes in the market to provide the consumer a broad range of choices of tar and nicotine.
Q. And as you -- and as you just said, you know that those varying levels, based on this intentionally putting the cigarettes into the market, can produce different sensations in smokers based on the nicotine level; correct?
A. I'm telling you that was my opinion, not being a biologist, that I would expect that different levels of nicotine would have different levels of effect.
Q. So that your manufacturing and design parameters are intended to affect bodily functions; aren't they, sir?
A. I think you're making this a lot more complicated than it turns out that it is, because we develop cigarettes that -- with different ranges -- with different tar and nicotine levels, we place them in the market, and if smokers buy them, they buy them; if they don't buy them, those products don't stay in the market. Now what we've done over the years is in fact bring that range of products down, and consumers have -- have followed that -- that tar and nicotine reduction over the years.
*29 Q. So that your manufacturing and design parameters are intended to affect bodily functions; correct?
A. No, I don't agree with that at all.
Q. Well sir you just said that the higher the nicotine, the more impact it would have.
A. I'm speculating that -- and it just seems common sense to me that if there's a -- a mild pharmacology to nicotine, the more there is, possibly the more effect there should be.
Q. And that's --
A. That seems common sense to me.
Q. All right. And that's the way you design your product; correct?
A. I guess I'm missing your point "and that's the way you design your product." Because we design products to give a different range of tars -- I mean a broad range of tar and nicotine levels. The nicotine pretty much goes along with the tar. As we reduce tar, the nicotine comes along with it. I -- I guess I just don't understand your question.
Q. There's nothing really magical about the question. I mean you've said you've designed cigarettes differently; correct?
A. We design cigarettes differently to achieve different tar/nicotine levels, and we place those in the market.
Q. All right.
A. We intentionally design cigarettes differently --
Q. Right.
A. -- to achieve that range of tar and nicotine delivery.
Q. And that intentional design decision by you, based upon your knowledge of nicotine, will have differing effects on bodily functions; correct?
A. If a smoker chooses a higher tar product which also has a higher nicotine product, I would expect more of an effect than if they chose a cigarette that had extremely low tar levels and extremely low nicotine levels.
Q. And that's what a drug is; isn't it, sir?
A. I beg your pardon?
Q. That's what a drug is.
A. I don't understand what you mean.
Q. Drugs have different dosages; don't they?

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A. I don't understand that.
Q. You don't know that you can get different doses of drugs? You don't know that?
A. Be more explicit, please.
Q. Well have you ever obtained a prescription in your life?
A. Well of course.
Q. And are there different dosages of prescriptions of the same drug?
A. One can get prescriptions or drugs in different doses.
Q. And the different doses will have a different effect on bodily functions; correct?
A. Well I don't know "different effect" is the right word, but certainly more of an effect or less of an effect, I would think.
Q. And sir, since 1994, that's why the FDA is seeking to regulate cigarettes as a drug; isn't that right?
MR. WEBER: Objection, Your Honor, he doesn't know why the FDA is doing what it does, and also it's argumentative.
THE COURT: Well it's not an argumentative question. If he knows, he may answer.
A. I'm sorry, would you ask me the question again, please?
Q. Sure. And sir, since 1994, that's why the FDA is seeking to regulate cigarettes as a drug; correct?
A. I don't know that.
*30 Q. Just don't know.
A. No.
Q. Can you direct your attention to Exhibit 12751. This is an RJR document from Donald L. Roberts dated October 13th, 1983. Do you know Mr. Roberts?
A. Yeah, I know Dr. Don Roberts. He's a chemist that worked for R. J. Reynolds.
Q. How long did he work for R. J. Reynolds?
A. I would say probably between 25 and 30 years before he retired.
Q. And he worked in the research and development department; correct?
A. Yes.
Q. Do you know what his duties were?
A. Well as a chemist he had a variety of duties. He did some of the early smoke composition work. He did some flavor synthesis in the early days. In this time he -- at this point in time he was doing some exploratory cigarette design work, and actually he was sort of doing pretty much as this memo suggests here, brainstorming. That was -- he did that for a short period of time, just trying to come up with new ideas.
MR. CIRESI: We'd offer Exhibit 12751.
MR. WEBER: No objection, Your Honor.
THE COURT: Court will receive 12751.
BY MR. CIRESI:
Q. Now sir, the date again is October 13th, 1983; correct?
A. It's October 13th, 1983.
Q. Okay. And there are differing sections of this memorandum; correct, dealing with smoking and personality, physiological aspects to smoking, unadressed motivations for smoking. Do you see all that?
A. Yes.
Q. Can you turn to the third page of the memorandum. Has the Bates numbers 4066.
A. Okay.
Q. And you see the second bullet point there?
A. Yes.
Q. Dr. Roberts states there that "The cigarette's taste is a relatively unimportant benefit of smoking. Its taste is primarily a delivery vehicle for the benefits delivered by smoking, however, an acceptable taste is critical to success." Do you agree with that?
A. No, I don't agree with that. And Dr. Roberts in my estimation spent a lot of his career working on flavors and cigarette flavors. I would be surprised if Dr. Roberts agrees with that.
Q. Well he wrote this; didn't he?
A. Well I saw this the other night as -- because you designated it for my cross-examination. That's the first time I had seen it. In going through it, it hits me, although I went through it fairly quickly, it hits me as exactly what he said, a brainstorming session for developing possible new businesses.
Q. I just asked you whether or not he wrote that in his memo. Did he write that?
A. I would have to assume so. His name is on the top of the memo.
Q. Do you know him to be an honest man who tries to convey his honest beliefs when he's writing to flavor and biobehavior divisions within the company?

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A. I know him to be an honest man. I know him to be a good organic chemist. I'm telling you I'm surprised to see that in his memo. I would be very surprised if he believes that. That's all I'm saying.
Q. Well does he say in here I really don't believe this, I'm just putting this in here?
*31 A. My quick read of this memo the other night is that there are a lot of assumptions, there are a lot of -- you know, Dr. Roberts was exploring possible new business areas in his brainstorming activity here. I don't know what he meant. I really don't.
Q. That wasn't my question. Did he put in the memo that he doesn't believe these things, he's just throwing them out as ideas?
A. No, he didn't. But I'm telling you based on my personal knowledge of -- of Dr. Roberts, I'm surprised, that's all. That's all I'm saying.
Q. Well you were surprised at other memos here, weren't you, today?
A. Yes.
Q. Let's go to the next page. "What a cigarette is.
"The functions a cigarette serves are many fold involving social, psycological and physiological. A short definition is that a cigarette supplies nicotine to the consumer in a palpable and convenient form." Do you see that?
A. I see that.
Q. He wrote it; correct?
A. Well again I would have to assume so, his name is on the front page.
Q. Okay. Do you agree --
A. I don't think --
Q. -- with that? Do you agree with that statement, sir?
A. "A short definition is that a cigarette supplies nicotine to the consumer in a palatable and convenient form."
I think a cigarette and cigarette smoking is far more complicated than what this suggests.
Q. So you disagree with the statement; is that what you're saying?
A. I'm saying I think the -- the real picture is more complicated than that and cigarette smoking involves more than just nicotine delivery.
Q. Do you disagree, then, with what Dr. Roberts said?
A. I disagree that a short definition of what a cigarette is is as he stated it here.
Q. Now Dr. Roberts was with the company for over 30 years; correct?
A. I'd estimate it somewhere between 25 and 30. I don't know exactly.
Q. Longer than you have been with the company; correct?
A. Certainly.
Q. And he was a chemist; correct?

A. That's right.
Q. Like you are a chemist; correct?
A. A different --
He was an organic synthetic chemist.
Q. And he did work on nicotine while he was there; didn't he?
A. I've already said that most of his work there was in the area of flavors.
Q. He worked --
A. I don't -- I don't recall him doing nicotine research.
Q. Well you don't deny that he did nicotine research; do you?
A. I said I don't recall him doing nicotine research. My -- my recollection of Dr. Roberts over many years was that he did flavor research.
Q. You don't know what nicotine research he did; fair enough?
A. I don't know whether he did it or not.
Q. Now you mentioned Dr. Russell yesterday. Do you recall that?
A. Yes.
Q. When you were talking about the scientific community calling for low tar/low nicotine cigarettes, do you remember that?
A. With reference to Dr. Russell, I was referring to low tar/medium nicotine cigarettes.
*32 Q. You mentioned Dr. Russell, then you mentioned Dr. Gori; correct?
A. I mentioned Dr. Gori a number of times.
Q. And in one of the Surgeon General's reports you cited to Dr. Russell; didn't you?
A. Yes.

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Q. And that was the 1981 Surgeon General's report; isn't it?
A. Right.
Q. And you implied that Dr. Russell was calling for commercial cigarettes with low tar and low nicotine; didn't you?
A. Low tar and low nicotine?
Q. Yes.
A. Dr. Russell, since the early '70 -- '70s, in fact, has been calling for low tar and medium nicotine primarily.
Q. Sir, in the Surgeon General's report you implied that that was what was being called for; correct?
A. Okay. Show me the article, please, and we'll read it.
Q. Do you remember that Mr. Weber directed you in the 1981 Surgeon General's report, which is Exhibit 3838, to page 185?

A. You said the 1981 one?
Q. That's right.
A. I'm sorry, and the page was?
Q. 185.
A. Okay.
Q. Do you remember he directed you down to the bottom of that page, "Toxicology of Nicotine?"
A. That's where the page was missing out of this report. That's correct.
Q. Pardon me?
A. That's where the page was missing out of this report.
Q. The one in front of you?
A. We'll go to the other one.
Q. You mean the one that Mr. Weber gave you, it had a page missing? The one we gave you is right next to you on your right, sir.
A. I'm going to the other one, the other copy.
Q. I believe the one we gave you is complete. If it isn't, please let me know, sir.
A. Okay.
Q. Now do you remember that you were directed to the bottom of page 185 --
A. Yes.
Q. -- as support for the fact that Dr. Russell was calling for in the Surgeon General's report -- and I don't recall exactly how the question was phrased, but it was something "the Surgeon General was calling for low tar/low nicotine cigarettes," something to that effect. Do you remember that?
A. In a general sense, that's correct.
Q. Now this is the part that was directed to your attention; right?
A. We referred to this area, among others.
Q. You referred to that specifically with regard to Dr. Russell; did you not?
If you go on to the next page, you'll see there's two cites, number 57 and number 62.
A. Well --
Q. And if you check those, you'll see that they refer to articles that were written by Dr. Russell.
A. Right.
Q. Isn't that right?
A. That's correct.
Q. Now this wasn't a section calling for low tar/low nicotine cigarettes; was it, sir?
A. This section talks about toxicology of nicotine.
Q. This talked about research priorities; didn't it?
A. This says "Toxicology of Nicotine."
Q. Well why don't you go back one page.
A. Okay.
Q. Talks about research cigarettes for behavioral researchers; doesn't it?
A. The overall heading on page 184 is "Recommendations." And then there are a number of sections after that speaking to some recommendations, there's a section on clinical testing facilities, there's a section on research cigarettes, machine smoke yields, and then finally toxicology of nicotine.
*33 Q. Well sir, the research cigarettes, after that comes the toxicology of nicotine; does it not?
A. No.
Q. It doesn't. All right.

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Well take a look at page 184.
A. Okay.
Q. Does it say, "A supply of clinically acceptable cigarettes that vary in nicotine, 'tar,' and carbon monoxide yield should be made available to behavioral researchers?"
A. Yes.
Q. And this is part of the "Clinical Testing and Standardized Research Cigarettes" section of the Surgeon General's report; correct?
A. It says "Clinical Testing Facilities" and standardized "Research Cigarettes."
Q. Now can you direct your attention to Exhibit 19102. Do you have it, sir?
A. Yes.
Q. This is an article by Dr. Russell; correct?
A. That's right.
Q. And he's a Ph.D.?
A. He's -- he's a medical researcher from the University of London.
Q. Is he a Ph.D.?
A. I believe he is.
Q. Thank you.
And this is an article that was published in the British Journal of Addiction; correct?
A. That's correct. 1990.
Q. And you recognize Dr. Russell as a reliable authority because you relied on him; correct?
A. Well I think that's correct. Dr. Russell has done a lot of research in the area of nicotine and -- and actually made a number of recommendations on -- on cigarette design.
MR. CIRESI: Your Honor, we'd offer Exhibit 19102 under a learned medical treatise.
MR. WEBER: No objection, Your Honor.
THE COURT: Court will receive 19102.
BY MR. CIRESI:
Q. Now in talking about the scientific community, I believe you talked about Dr. Gori. Is he a medical doctor?
A. I believe he's an epidemiologist and a - - I'm not sure.
Q. You don't know. Okay.
You talked about Dr. Russell and you talked about their work at the NCI; correct?
A. Yes.
Q. You talked about this Surgeon General report; correct?
A. Talked about several Surgeon General's reports.
Q. Well we discussed specifically the Surgeon General report 1981 where it cited Dr. Russell; correct?
A. Right.
Q. And then you put in a memorandum of RJR, it was AT000575, where RJR cited some work by Dr. Gori. Do you remember that?
A. There were --
Yes.
Q. And you recall that there was also an article by Dr. Gori that you put into evidence.
A. On the Science article?
Q. Yes. It was AZ000998.
A. 1976 Science?
Q. Yes.
A. Yes.
Q. Do you remember that?
A. Yes.
Q. And in there Dr. Gori cites himself; doesn't he?
A. Of course.
Q. And then you cited a Dr. Jarvik; correct?
A. Yes.
Q. And is he a doctor?
A. I believe he is.
Q. And he cited Gori and Russell; correct?
A. I don't remember.
Q. You don't know. Okay.
Now this is an article by Dr. Russell in 1990; correct?
A. In the British Journal of Addiction, 1990.

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Q. Long after the other articles that you referenced with regard to Dr. Russell; correct?
A. These were after --
*34 This article is after the articles that we've already just discussed just a minute ago.
Q. Now in this one, can you direct your attention to the summary.
A. Yes.
Q. He states here that "It is generally recognized that smoking causes more preventable illness than any other form of drug addiction." Correct?
A. That's what it says.
Q. "Despite this, and unlike the case with other addictions, few services are provided to help people to give it up." Correct?
A. That's what it says.
Q. "Yet nicotine is highly addictive." Correct?
A. That's what it says.
Q. "Its role in the recruitment process, the development of dependence and as a block to smoking cessation are discussed within the context of the typical smoking career." Correct?
A. That's what it says.
Q. "Over 90 percent of teen-agers who smoke three to four cigarettes are trapped into a career of regular smoking which typically lasts for some 30 to 40 years." Correct?
A. You read that right.
Q. And "Only 35 percent of regular smokers succeed in stopping permanently before the late -- age of 60, although the large majority want to stop and try to stop." Correct?
A. You read that accurately.
Q. And that's what this article is about; isn't it, sir?
A. This article is clearly about Dr. Russell's views on nicotine addiction.
Q. And what he wanted to do over the years was to continually ratchet down nicotine levels in order to get people off of cigarettes; didn't he?
A. I think my take from reading a number of Russell's articles is that he clearly believed that -- that people should not smoke, I think that goes throughout his publications, but I disagree with -- and -- and I think you're wrong in the question, because I think there was a period where Dr. Russell was suggesting that the health effects of nicotine, if any, are small compared to, what he said, the health effects of tar, and that's why he proposed what I call the Russell hypothesis, which is a cigarette that has medium nicotine levels and can maintain consumer acceptance but bring the tar levels down as low as possible, a design like that might be a reduced-risk product. So I --
The answer to your question is no, I don't think that went throughout Russell's scientific career.
MR. CIRESI: All right. Well then I will move to strike everything before the point where he said, "The answer to my question is no, I don't think that went throughout Russell's scientific career."
THE COURT: I'll let the answer stand.
Q. Now you say it didn't go throughout Russell's scientific career. Are you suggesting that Dr. Russell, if he were brought in here, would say he wants manufacturers to make low nicotine cigarettes so they can stay on smoking as opposed to quitting? Is that what you're saying?
A. Make low nicotine cigarettes?
Q. Yes. Or medium nicotine cigarettes.
A. I mean we can --
I can speculate what Dr. Russell -- Professor Russell might say if he were here. I can give you at least my opinion, if you like.
*35 Q. He wouldn't say that; would he, sir? He wouldn't say that; would he, sir?
A. I think -- I think Professor Russell, if he were standing here in front of us, he would -- he would certainly make it clear that he thought people ought to quit smoking and people should not smoke.
Q. And he would make it clear that we should do everything within our power to provide alternative ways for them to reduce their smoking with an end goal of quitting their smoking; wouldn't he?
A. In a general sense, I would agree with that.
Q. And sir, in his article here in 1990, he points out that heroin users rated cigarettes --

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A. I'm sorry, which line are you on?
Q. Page 295. I'm sorry. Left-hand column. Let me start up a little bit above that. Do you see in the left column "Some years ago, colleagues at our unit...?" We've marked it on the --
A. Yes.
Q. Okay. "Some years ago, colleagues at our unit asked a representative sample of 210 heroin users attending 16 London drug addiction clinics to rate their most 'needed' drug from a long list that included heroin, methadone, amphetamine, barbiturates, LSD, cannabis, alcohol, tea, coffee, and cigarettes, most of which would have been tried by heroin users at that time." Do you see that?
A. I see that sentence.
Q. "Out of this wide choice, the heroin users rated cigarettes as their most needed drug, implying they perceived it as being more difficult for them to cope without nicotine than without heroin itself. How powerful dependence on cigarettes can be is illustrated by the fact that about 70 percent of smokers who survive a heart attack take up smoking again within a year, and even after undergoing surgery for lung cancer about 50 percent of smokers who survive resume smoking."
Do you see that?
A. I see that sentence.
Q. And you would call that a mild pharmacological effect; correct, sir?
A. You asked me about my opinion on the pharmacology of nicotine, and I told you.
Q. You would call it a mild pharmacologic effect; isn't that right?
A. I just answered that question.
Q. Do you know how many teen-agers over the past 40 years have started smoking and become addicted?
MR. WEBER: Objection to this, Your Honor, it's asked and answered on Friday, the very question.
THE COURT: I think it was asked and answered.
Q. Now you talked about Dr. Gori; correct?
A. Yes.
Q. And he was at the Tobacco Working Group; correct?
A. Well he was not only at the Tobacco Working Group, he was in charge of the Tobacco Working Group at the time he worked for the National Cancer Institute.
Q. Friend of the industry?
A. I wouldn't say so at all, no.
Q. Did he leak information to the industry?
A. I don't -- I'm not aware of leaking information. I don't know what you're referring to.
Q. Did the industry go to the White House, try to get him a job?
A. I don't -- I don't know. I know that Dr. Gori -- you know, this -- this is my perception of the situation. I think Dr. Gori lost his job at the National Cancer Institute because he maintained that some people will continue to smoke and that there is a place in our society for reduced-risk products. He had a lot of passion about that in his publications and on the work on the TWG over the years. He fell out of favor in the government because of his position. He lost his job. Beyond that, you know, I don't know whether the industry tried to get him a job or whatever you're suggesting. I don't know any details about that.
*36 Q. Tried to get him a job while he was with the NCI within government; didn't they?
A. I don't know anything about that.
Q. Went to the White House to try to get him a job; didn't they?
A. I don't know anything about that.
Q. He was hired by the industry after he left government; wasn't he?
A. I know Dr. Gori in recent years has done some contract work for one of our competitors. That's the extent of my knowledge.
Q. Brown & Williamson; correct?
A. That's the competitor.
Q. Can you take a look at Exhibit 13824. This is a Brown & Williamson document; correct?
A. Yes, it is.
Q. Dated January 31, 1973; correct?
A. That's what it says.
Q. About the time you were talking about his work at the NCI; correct?
A. The NCI was going on at the time.

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MR. CIRESI: Your Honor, we'd offer Exhibit 13824.
MR. WEBER: No objection, Your Honor.
THE COURT: Court will receive 13824.
BY MR. CIRESI:
Q. In the opening paragraph it says "During two telephone conversations between Drs. Spears (Lorillard) and Gori, the latter had suggested that he would be prepared to speak with the Industry Scientists to outline his views regarding the meeting of the Ad Hoc Committee of the Advisory Committee of the National Cancer Board." Do you see that?
A. I see that sentence.
Q. Now that's the same Dr. Spears that we saw in Mr. McDermott's memo; isn't it?
A. I believe that's Dr. Alex Spears.
Q. That's the one who was talking about thwarting research; correct?
A. That's the Dr. Alex Spears that was in that memo or referenced in that memo that we discussed earlier.
Q. Mr. McDermott's memo; correct?
A. Mr. McDermott's memo.
Q. The one that talked about thwarting research; correct?
A. In a general sense, that's correct. We've already talked about that.
Q. Now the Ad Hoc Committee of the Advisory Committee of the National Cancer Board is something you talked about on direct; isn't it?
A. Yes.
Q. And it states here that "Discussion amongst Industry representatives in New York on January 24/25 led to agreement that Drs. Spears and Hughes should accept Gori's offer;" correct?
A. That's what it says.
Q. So what happened is the industry got together and they said, well, we got this call from Dr. Gori, let's meet with him; correct?
A. In a general sense, that's what it sounds like.
Q. And do you know who Dr. Hughes is?
A. I don't know him. I've heard the name.
Q. And who is he with?
A. I would be guessing.
Q. What's your guess?
A. Brown & Williamson.
Q. Brown & Williamson.
And so at 10:30 A.m. the two industry representatives, Spears and Hughes, met with Dr. Gori at the NCI; correct?
A. At the NCI, to listen to whatever he had to say.
Q. And in number two -- look at number two. "As a result of the cancellation of the January meeting, Gori was more cautious. He seemed to have some fear that his 'leaking' of the January 11th meeting might be prejudicial to him." Do you see that?
*37 A. I see that and I don't understand that. I don't know what that means or I don't know the circumstances of it.
Q. You see the reference in the next paragraph to Mr. Kornegay?
A. Yes.
Q. And Mr. Kornegay was head of The Tobacco Institute?
A. Yes.
Q. And if you go to paragraph four, you see Gori expressing his views about what he thought the Ad Hoc Committee will be addressing itself to? Do you see that?
A. I see that. And the emphasis was on the little cigar situation, maximum tar/nicotine levels, and the need to give increased impetus to research in the smoking and health field with emphasis on less hazardous products.
Q. And that was Gori's idea; wasn't it, that number three? Wasn't it, sir?
A. It sounds like it at face value.
Q. Yes. And if you go on to the next page, do you see Brown & Williamson there under "Tar and Nicotine Fixing" expressing their viewpoint based upon Dr. Spears and Dr. Hughes' visit with Dr. Gori?
A. I don't know. Is that an accurate paraphrase of this paragraph?
Q. Well see what he says. This is the memo based on the Spears and Hughes meeting with Gori at the NCI at 10:30 A.m. on January 31; isn't it?
A. I don't know what this means.
Q. Well let's read it.
A. Okay. Good ideA.

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Q. "There was considerable confusion in Gori's explanation as to the need for maximum levels of tar/nicotine. He expressed the view that a large degree of the industry's problems, viz-a-viz lung cancer, are really due to those high tar and nicotine cigarettes on the market, and he made particular reference to the non-filtered cigarettes. He thought that if one could remove non-filtered cigarettes from the market 70 percent of our lung cancer problems would be reduced. Obviously, this was a very naive view." Do you see that?
A. I see that.
Q. And they're talking about Gori's idea; aren't they?
A. Sounds like Gori expressed his opinion.
Q. And then down under "Research on less hazardous cigarettes," do you see that?
A. Don't you want to finish reading the last one?
Q. Well if you want to read the rest, that's fine. "To questions as to how this committee could fix tar/nicotine levels, he expressed the view that he thought they were more likely to suggest the setting up of a study group to give detailed consideration to this question. In this context, he was hopeful that the industry would participate. He commented that the case against tar was much stronger than against nicotine." Is that what he said?
A. That's what it says here.
Q. And as he said on the previous page, he had some fear about leaking this information to the industry up front of the Ad Hoc Committee's meeting of the NCI; didn't he?
A. I'm not sure what that point number two about leaking means. I don't know whether it's related to this or not.
Q. Well let's go on and see if we can figure it out, doctor. Number three, "It would appear that Gori is hopeful that the Ad Hoc Committee will, in some way, strenghen the position of the TWG" --
*38 That's the Tobacco Working Group; right?
A. The Tobacco Working Group.
Q. So he was hopeful that the Ad Hoc Committee would strengthen the position of that group in the National Institutes of Health; correct?
A. NIH, National Institutes of Health.
Q. And that's --
And he was heading up this Tobacco Working Group; wasn't he?
A. Dr. Gori was the head of the Tobacco Working Group.
Q. -- "and possibly lead to closer cooperation between NCI and NHLI" --
Do you know what that is?
A. I don't know what NHLI is.
Q. -- "thereby leading to a broader program for which he will be responsible." Correct?
A. That's what it says.
Q. "Gori has indicated on several occasions he is very much afraid that the February 14th meeting might prejudice the relationship between 'industry' and himself." Do you see that?
A. I see that said, and I don't understand what that means.
Q. Well you don't understand it.
A. I mean it sounds -- it sounds to me like in this paragraph and the previous paragraph, Gori has some ideas for expanding tar and nicotine reduction by looking at maximum levels and research on the less hazardous cigarettes, to use his words, and then he's looking to expand that. But I don't know what a February 14th meeting might be prejudicial -- or might prejudice the relationship, I don't know what that means.
Q. Trying to create a broader program that -- of a program that he would head; isn't he?
A. Well I think that's the words, and I think based on reading a number of things from Gori, I think Gori has been very sincere about trying to reduce the health risks of smoking.
Q. Sir --
A. I wouldn't -- I wouldn't try to imply that Dr. Gori was only interested in larger responsibility within -- within NCI.
Q. He wasn't. Okay. Well we'll see if the memo addresses that. All right?
A. I said -- I said I don't think it's fair to assume that that's the only motivation here.
Q. Down in the last paragraph, about four lines up, starts with "Gori...." Do you see that?
A. The last paragraph? Yes.

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Q. "Gori went out of his way to create the impression that he is -- is a very reasonable man, that he understands the industry's problems and is sympathetic to them, and that the only way forward is for the industry to work with people such as himself towards a position of less hazardous products." Correct?
A. That's what it says.
Q. And then midway through that paragraph on the next page he says, "As an aside at the end of the conversation, Gori indicated that the vacancy of Head of Etiology in NIH is still not filled." Do you see that?
A. Yes.
Q. And then very last sentence, he says, "Following this, Gori very bluntly asked was it not possible for the tobacco lobby in Congress to use its influence to get Gori appointed to the position, bearing in mind that he is a reasonable man and sympathetic to the industry." Is that right?
*39 A. That's what these words say.
Q. So apparently he sets up this meeting where he leaks information, says he wants a broader position, and then at the very end, an aside, he says, by the way, I'd like a big job, will you use your lobbying influence and get it for me. That's what -- that's what this memo says; isn't that right, sir?
A. Well that could be one characterization from this -- these words. I'm not sure that that's the only or even the accurate. I don't know.
Q. Just don't know.
A. It's very difficult to take a -- to take a memo like this and try to guess what actually is going on sometimes.
Q. Now do you know if -- what happened as a result of that?
A. Do I know?
Q. Yes.
A. No.
MR. CIRESI: Your Honor, we're going to move into a new document. It's going to take a little longer.
THE COURT: All right. Then why don't we recess at this time, reconvene tomorrow morning at 9:30.
THE CLERK: Court stands in recess, adjourned until tomorrow morning at 9:30.

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